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SEPTEMBER 2001

American Cinematographer

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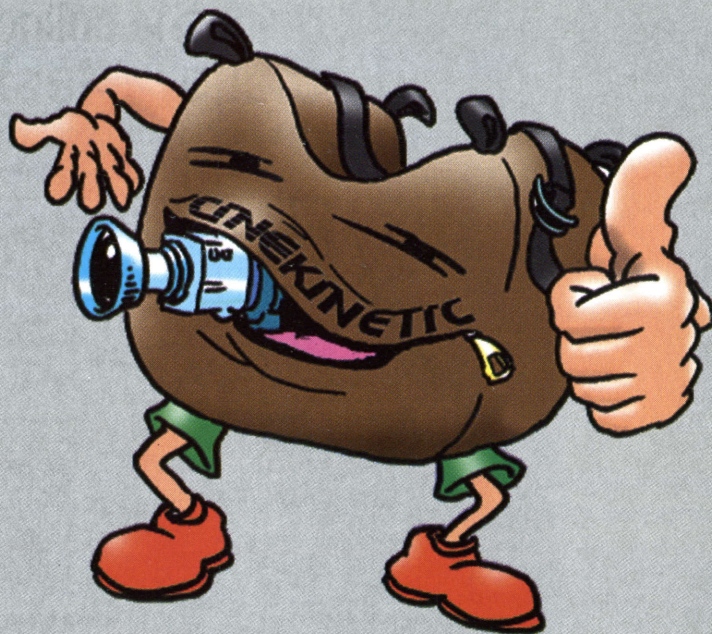
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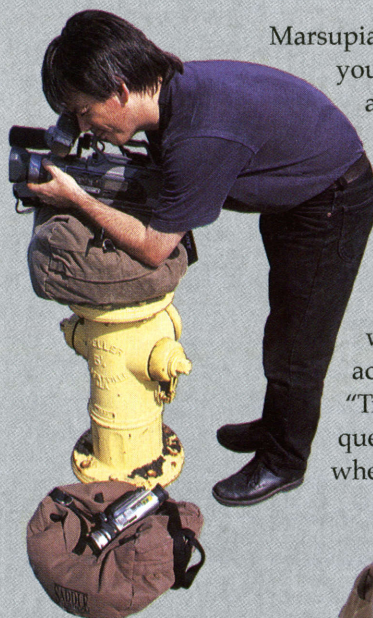


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ROB McLACHLAN, CSC

Rob McLachlan CSC.

ONFILM

"Movie scripts are getting more descriptive in mood and tone, but you have to know where to draw the line. A painting isn't defined by how pretty it is. You judge art by how it makes people feel. It's the same with film. The lighting can be beautiful, but if it doesn't help the flow of the story, it doesn't mean anything. Personally, I find it more satisfying to work on the edge and take risks rather than play it safe. For example, on one film, I lit a scene half with strobes and half normally. We exposed the film at 12 frames per second and printed it back to 24. The result was a startling illusion of someone moving faster than time—sharp, yet blurred. How did I know it was the right thing to do? It felt organic and I trusted my instincts."

Rob McLachlan, CSC has earned eight Outstanding Achievement Awards from the Canadian Society of Cinematographers (CSC) along with three consecutive American Society of Cinematographers (ASC) nominations for the episodic series *Millennium*. His narrative credits include the telefilms *Adrift*, *A Vision of Murder*, *Other Women's Children* and *High Noon*, which was also nominated for an ASC Award. His cinema features include *Final Destination* and *The One*.

All these films were shot on Kodak motion picture film.

For more information, visit the Kodak website at www.kodak.com/go/onfilm



American Cinematographer

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On Our Cover: Officer Richard Winters (Damian Lewis) confronts the harsh realities of combat in *Band of Brothers*, a 10-part HBO miniseries shot by cinematographers Remi Adefarasin, BSC and Joel Ransom, CSC (photo by David James, courtesy of HBO).

Contributing Writers:
Stephanie Argy
Benjamin Bergery
Bob Davis
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Jon Silberg



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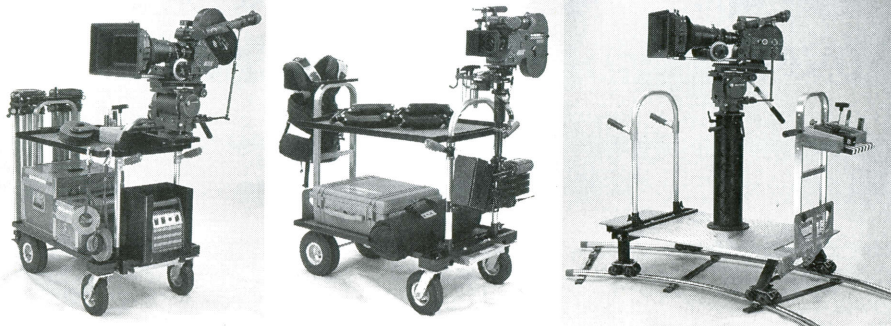
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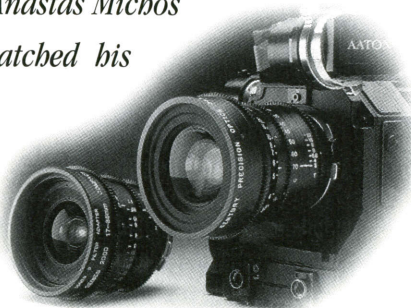
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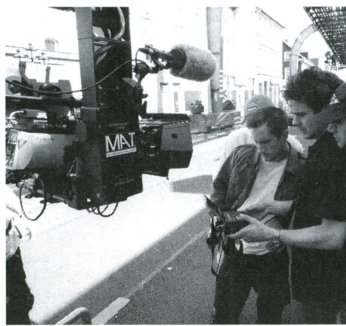
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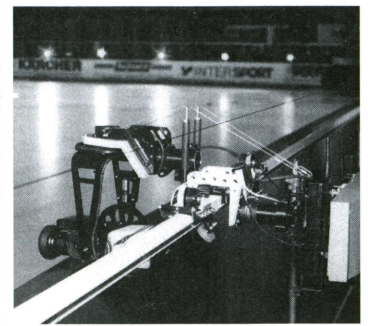
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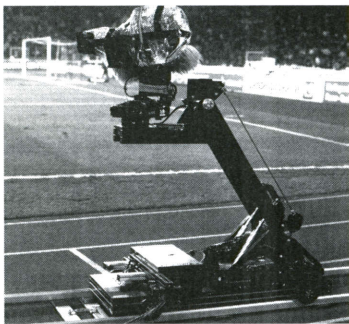
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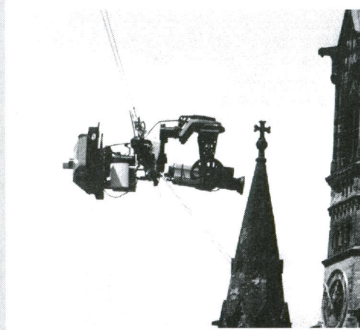
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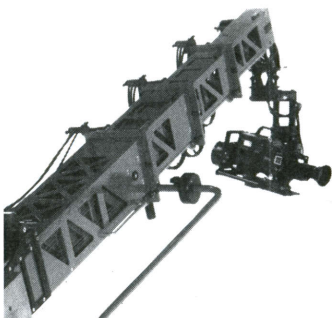


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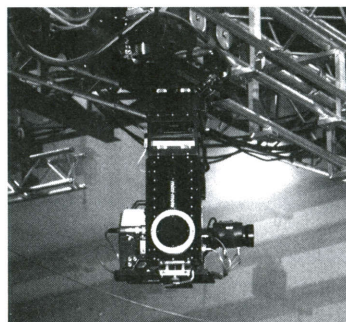


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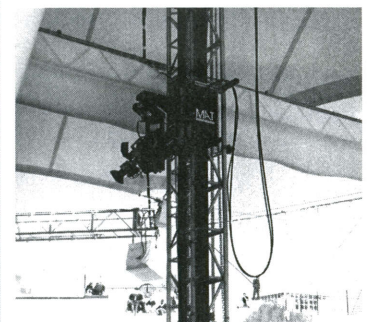
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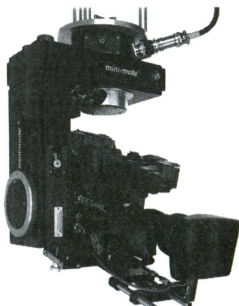
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IMAGE SHAKER

We've taken state-of-the-art technology and applied it to the task of simulating a wide

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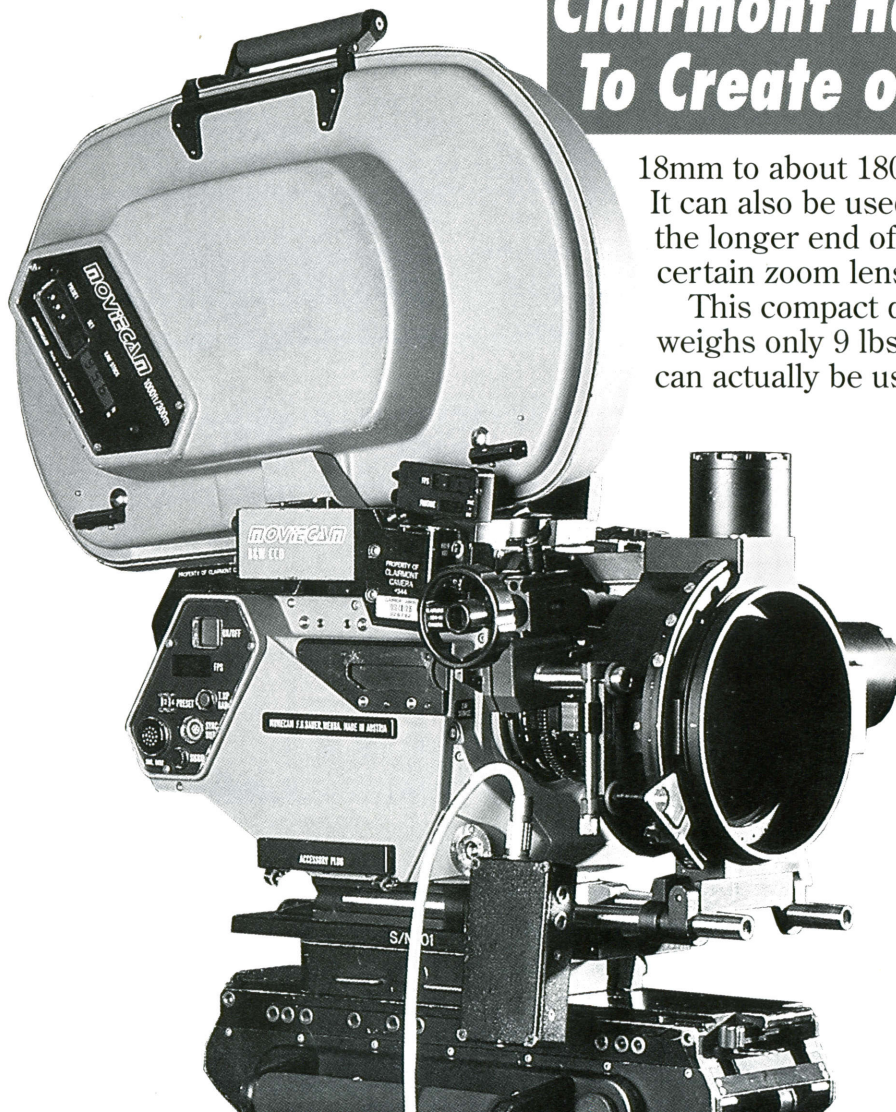
Clairmont Has 3 Special Devices To Create or Control Vibration!

18mm to about 180mm. It can also be used on the longer end of certain zoom lenses.

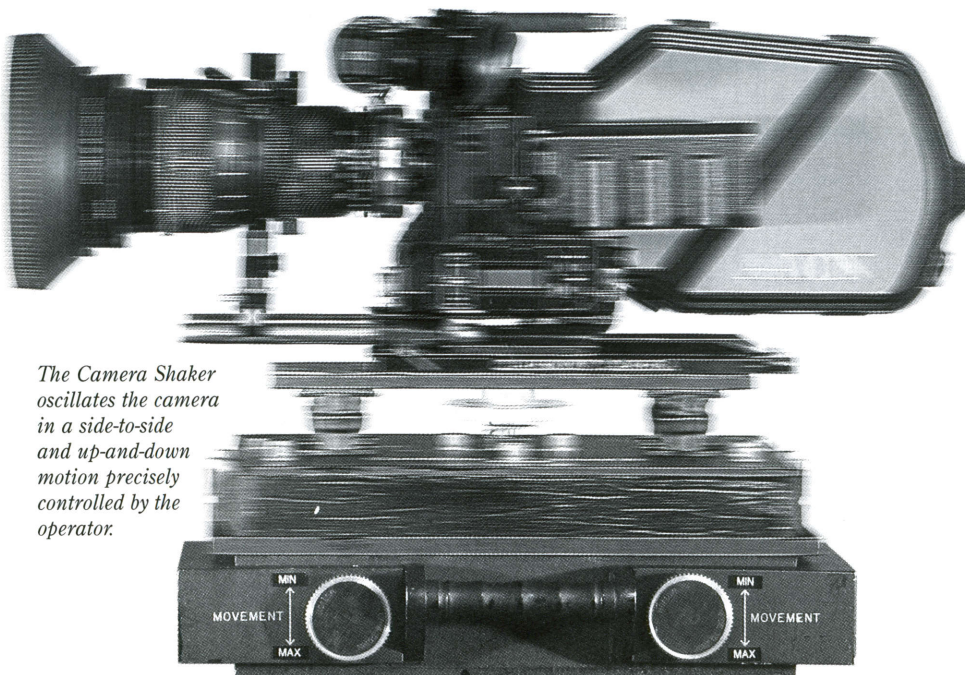
This compact device weighs only 9 lbs., and can actually be used in

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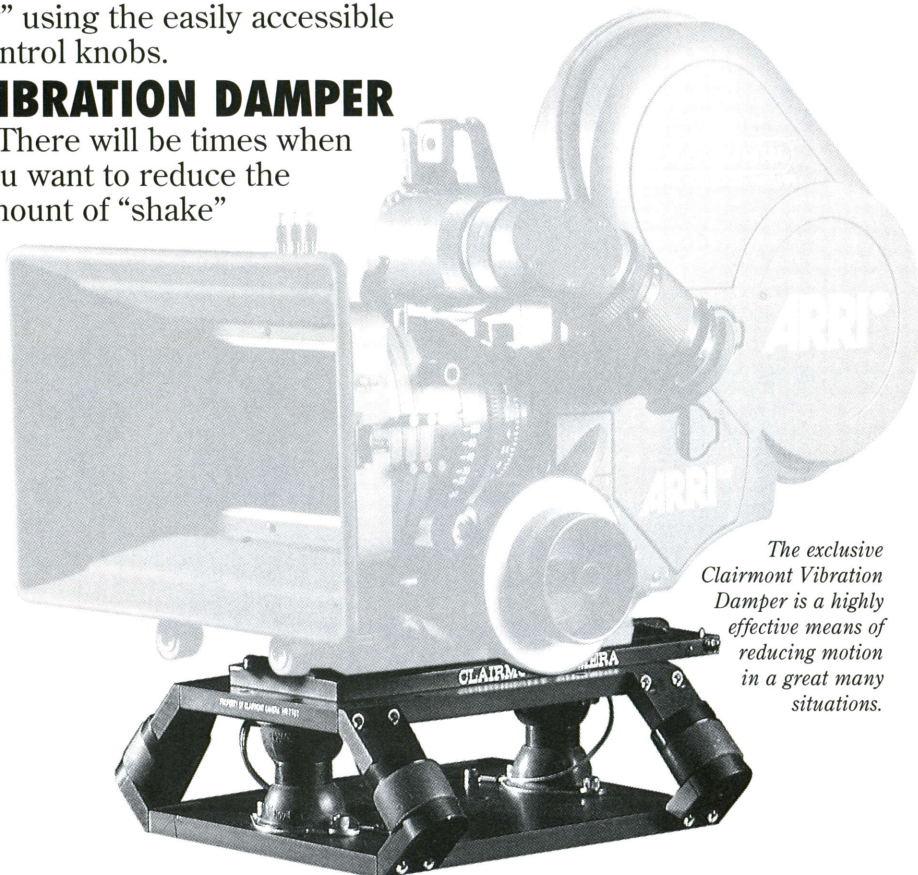
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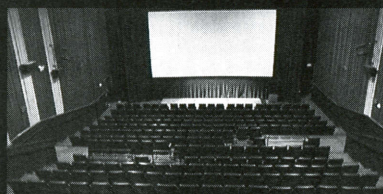
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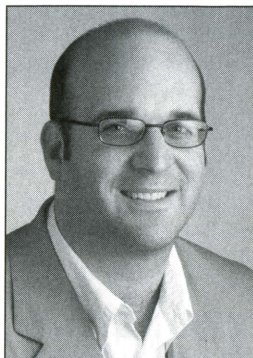
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Editor's Note



Shooting abroad can introduce any number of variables for a cinematographer, who cannot always rely upon familiar methods when confronted with foreign cultures, locations and governments. On the other hand, working outside of one's native land can reawaken the sense of wonder that makes a film come alive. This issue of *AC* traverses the globe to examine a variety of intriguing international efforts that tested their makers on both artistic and logistical levels.

First up is HBO's *Band of Brothers*, an epic 10-part miniseries that allows viewers to march with the men of Easy Company, a crack squadron of paratroopers who tackled some of World War II's toughest strategic objectives. Shot primarily in England, the show required not one but two accomplished cinematographers: Remi Adefarasin, BSC and Joel Ransom, CSC. Our piece on the project ("Close Combat," page 32) examines the production's most interesting angles.

An authentic period look was also essential to *The Affair of the Necklace* ("A Perilous Pursuit," page 46), which is set amid the court of Versailles in the 18th century. Cinematographer Ashley Rowe, BSC and director Charles Shyer made the most of stunning locations in both France and the Czech Republic, including a church filled with sculptures fashioned entirely from human bones.

The 2-D Imax feature *China: The Panda Adventure* takes us to the Far East, where ace large-format cinematographer Reed Smoot, ASC sought to incorporate documentary-like material into a compelling narrative framework. Our coverage ("Tracking the Giant Panda," page 56) includes a detailed diagram of the lighting required to illuminate an elaborate street scene in Shanghai.

Another project produced overseas is a little film called *Star Wars: Episode II*, which will be released next summer. Every new *Star Wars* installment is a must-see movie event, but *Episode II* has the additional intrigue of being shot entirely with digital cameras. Director George Lucas, producer Rick McCallum and cinematographer David Tattersall, BSC offered *AC* an exclusive sneak peek at their methods ("Digital Cinema, By George," page 66; "Framing the Future," page 76), and we couldn't resist providing you with a preview of this eagerly anticipated picture.

This issue also offers enlightening articles on *Amélie from Montmartre* (shot in Paris by cinematographer Bruno Delbonnel), *The Vertical Ray of the Sun* (shot in Vietnam by Mark Lee Ping-Bing) and *Jeepers Creepers* (shot right here in the U.S.A. by Don FauntLeRoy, ASC).

Sincerely,

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The Post Process

Canadian Arctic Feature Gets a Smooth Transfer

by Debra Kaufman

Shoot in PAL" has always been the sage advice to those shooting video and planning to transfer to 35mm. Since PAL's 25 fps rate is closer to film's frame rate than NTSC video's 60 interlaced fields, it has always seemed like good advice to follow, and indeed, many projects shot on videotape for theatrical release have taken that path.

However, Vancouver, B.C.'s Digital Film Group recently proved that an NTSC shoot doesn't have to result in a second-rate 35mm print. The firm is a collective of filmmakers and technicians who pooled their resources and expertise to create a facility providing high-quality video-to-film transfers. They most recently transferred an NTSC master to 35mm print for the feature *Atanarjuat* — *The Fast Runner*, which went on to win the Camera D'Or for Best First Feature Film at the 2001 Cannes Film Festival.

"From a technical perspective, *Atanarjuat* represents what is possible in shooting with standard-definition digital formats and blowing up to film," explains James Tocher, president/founder of Digital Film Group. "The affordable nature of standard-definition NTSC video, as opposed to hi-def, allowed this stunning feature film, with its many challenges, to actually be produced."

A period epic produced by Igloolik Isuma Productions and the National Film Board of Canada, *Atanarjuat* was shot in the Inuit territory of Nunavut in the Canadian Eastern Arctic. Based on an ancient legend of jealousy, murder and family betrayal, the film was written in the native Inuktitut language and features an all-Inuit cast of mostly first-time actors.

Igloolik Isuma Productions is no newcomer to the multimedia realm. Incorporated in January 1990 as Canada's first Inuit independent production company, Isuma's mission has always been to professionalize an Inuit style of community-based media production to preserve and enhance Inuit culture. The media collective has already produced several short dramas and documentaries, as well as a 13-part television series.

Atanarjuat, the collective's first feature film, was budgeted at \$2 million Canadian (about \$1.3 million U.S.). Director Zacharias Kunuk, cinematographer Norm Cohn (the only non-Inuit Isuma founder and member of the core production team) and producer/scriptwriter Paul Apak Angilirq had more than 70 years of video production experience among them. When they began work on the project in 1998, the first order of business was picking a camera. "HD didn't exist then, or we would have considered it," Cohn explains. "One thing you learn after years of video experience is to work with the best camera you can afford."

In 1998, the best unit available was Sony's DVW-700 widescreen Digital Betacam, which offered a Canon 5.2-48mm zoom lens, a wide-angle lens that allowed Cohn to focus inside the action, as close as six inches. Most of the film was shot in natural light, and the visual textures created by the spectacular northern light won raves from reviewers. Some interiors used Inuit-style lighting — seal-oil lamps burned as brightly as possible — augmented by 200-watt tungsten spotlights.

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a PAL DigiBeta camera, but they found it easier to raise the money to buy a camera than to rent one. Buying an NTSC camera therefore made more sense, because the filmmakers could more easily rent it to other users after completing their project. Kunuk and Cohn also began to hear tales of PAL transfer problems in sync and audio post. "We suspected that the technical differences [between PAL and NTSC] were overstated," Cohn concluded. "The great leveler is the quality of the camerawork. We guessed that by the time we'd be ready to transfer, the technology would be there, and we guessed right."

The film was shot in the Arctic's lightest, warmest months, April through September. It was offlined, first in Igloolik and then on an Avid in Montreal, by Kunuk, Cohn and Marie-Christine Sarda. A complete, color-corrected DigiBeta master was sent to Digital Film Group.

On Digital Film Group's Web site (www.digitalfilmgroup.net), the company lists its advice for shooting video for a good film transfer: always shoot in 16:9 squeezed mode; don't use frame mode, movie mode or shutters of any kind; don't use any softening filters in front of the lens; don't use any film-emulation software in post; and finally, "You don't have to shoot PAL to get a great transfer!"

According to Tocher, Digital Film Group's proprietary Smooth Motion technique blends 60 fields to create 24 frames. "It's always been a tradeoff between motion integrity and resolution integrity," says Tocher. "If you just throw away frames arbitrarily, you'll get motion jitter."

Though Tocher readily admits that Digital Film Group isn't the only company to have solved the problem of resolution and motion integrity, he's bullish on his proprietary system, which features a CRT-based Celco Extreme film recorder system. "When people see the film, their jaws drop," says Cohn. "I was worried that it might not transfer well; transferring video to film used to be an awful experience. Now that the technology is here, there's just the 'problem' of making a good movie!" ■

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DVD Playback

by **Chris Pizzello**

Stanley Kubrick Collection

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"You either care or you don't, and I simply don't know where you draw the line between those two points."

— Stanley Kubrick, 1975

When Warner Bros. announced the impending arrival of a brand-new DVD boxed set of Stanley Kubrick's films a mere two years after releasing the first Kubrick compilation in 1999, it was impossible not to feel strong pangs of cynicism. Wasn't this an implicit admission by Warners that the original boxed set — a heavily hyped fiasco of inferior, outdated transfers timed to capitalize on the release of *Eyes Wide Shut* — was indeed sorely lacking in every respect?

Kubrick dedicated his entire career to the concept of *getting it right*. To their credit, Warner Bros. has sucked up the criticism and "corrected" themselves, delivering a restored set of DVDs that honors the legacy of Kubrick, one of the indisputably great directors of the 20th century. As with the first boxed set, the supplements in this new collection aren't exactly plentiful. But the spare presentation seems oddly appropriate — throughout his career, Kubrick himself avoided interviews like the plague, believing that his films spoke for themselves. And indeed they do.

This new set includes the films *Lolita* (1962), *Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb* (1964), *2001: A Space Odyssey* (1968), *A Clockwork Orange* (1971), *Barry Lyndon* (1975), *The Shining* (1980), *Full Metal Jacket* (1987) and *Eyes Wide Shut* (1999). In addition to pristine transfers and remastered soundtracks, the most substantial carrot that Warner Bros. offers to potential buyers is Jan Harlan's

new two-hour and 20-minute documentary *Stanley Kubrick: A Life in Pictures*. Narrated by *Eyes Wide Shut* star Tom Cruise, the film is hardly objective — Harlan is not only the brother of Kubrick's wife, Christiane, but had also served as the director's longtime executive producer — and hardcore Kubrick buffs won't find any new revelations (except a few home movies of the future legend as a devilish Brooklyn tyke). But *A Life in Pictures* is nevertheless a well-researched and smoothly directed tribute that succeeds in its primary function: whetting one's appetite to view Kubrick's films again.

A documentary is only as good as its source materials, and Harlan lined up a prestigious guest list for *A Life in Pictures*: Woody Allen, Sir Arthur C. Clarke, Michael Herr, Malcolm McDowell, Jack Nicholson, Richard Schickel, Martin Scorsese, Steven Spielberg and Douglas Trumbull are just a few of the titans who weigh in with their views on the enigmatic director and his films. One of the most interesting stories illuminates a decisive moment in Kubrick's directing career, as well as his desire for total control: his early producing partner, James B. Harris, recounts an incident from the set of *The Killing* (which is not included in this set but is available separately), where highly respected veteran cinematographer Lucien Ballard, ASC mounted a lens on the camera that was longer than the 25mm Kubrick had requested. After a brief battle of wills, the young director calmly told the cinematographer, "Put the camera where I told you, with the lens I asked for, or get off the set." From that point on, Kubrick's authority was rarely challenged.

Also of interest in the documentary is A.I. writer Brian Aldiss's explanation of Kubrick's theory that a good movie requires the connection of at least six

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"non-submersible units" — although the writer concedes that these "chunks" of thematic material don't quite connect in *2001*, which may be one reason that there is still such speculation about the mysterious film. Meanwhile, Cruise explains Kubrick's notorious penchant for filming innumerable takes of the same scene, which accounted for the increasingly snail-like pace of the director's productions: "The repetition [would] end up finally breaking into a place where nobody expected." Far from a mere perfectionist, Kubrick was always waiting for that elusive "magic" to materialize in the frame — a luxury afforded to precious few, if any, directors working in today's depressing, bottom-line climate.

The happiest development of the new boxed set is the quality of the fresh digital transfers and remastered soundtracks. Each film, from the deliberately glossy, black-and-white *Lolita* (shot by Oswald Morris, BSC) to the dreamlike *Eyes Wide Shut* (photographed by Larry Smith), is crisp, detailed and remarkably free of artifacts, a radical improvement on the near-blasphemous transfers of the previous boxed set. In particular, *The Shining*, *Barry Lyndon* and *A Clockwork Orange* (all shot by longtime Kubrick collaborator John Alcott, BSC) are revelations, restoring the power of Kubrick's cunning use of color. Crucial visual details like the blood-red walls of the Overlook Hotel's bathroom in *The Shining*, the painterly warmth of the famous candlelit scenes in *Barry Lyndon*, and the vulgar hues of the futuristic clothing and furniture of *A Clockwork Orange* have all been restored to their original impact.

Some DVD enthusiasts have complained about the full-frame aspect ratios (apparently insisted upon by Kubrick) of *The Shining*, *Full Metal Jacket* and *Eyes Wide Shut*. Viewers should be aware, however, that Kubrick primarily composed his shots for a 1.66:1 frame, and only then made allowances for the wider 1.85:1 aspect ratio favored by most contemporary theaters. Compositionally speaking, DVD viewers are basically getting what Kubrick intended them to see. However, North American viewers must still endure Warner Bros.'

continued insistence on the ridiculous digital "figleafing" of copulating couples in the orgy scene of *Eyes Wide Shut*.

Besides Harlan's documentary, the other substantial extras are mostly found on Columbia TriStar's contribution to the set, *Dr. Strangelove*. A short documentary entitled *The Art of Stanley Kubrick from Short Films to Strangelove* chronicles Kubrick's visual development in that early phase of his career. Marred by cheesy narration, the film imparts only a few tidbits of useful information, mainly through interviews with *Lolita* cinematographer Morris and *Strangelove* director of photography Gil Taylor, BSC. Far more interesting is *Inside the Making of Dr. Strangelove*, which delves into such topics as Ken Adam's brilliant set design, Kubrick's ability to keep mercurial cast member George C. Scott in line by repeatedly besting him at chess, and the amazing second-unit footage captured above the Arctic Circle. Shooting conditions were apparently so frigid there that the film negative once disintegrated like dust when a crew member opened up the camera. Elsewhere are an original advertising gallery and a pair of amusing mock interviews with Scott and fellow cast member Peter Sellers.

The disk for *The Shining* provides by far the best supplement of the entire package. Kubrick allowed his daughter Vivian, only 17 at the time of *The Shining's* filming, to shoot documentary footage of the production at Shepperton Studios in London. This breezy and entertaining historical document contains some fascinating sights: a fuming Kubrick browbeating an agitated Shelley Duvall before a take; an axe-wielding Jack Nicholson working himself into a properly psychotic state just before filming the famous "Heeeeere's Johnny" scene; and an impromptu set visit from actor James Mason, who was working on another film next door at Shepperton. The sight of the *Lolita* star and director together again is a nice image to complete the circle of the *Kubrick Collection*. For the new edition, Warner Bros. has enhanced the documentary by adding a genial audio commentary by Vivian Kubrick herself. ■

Photo of Pierre Rouger, by Joel Lipton.

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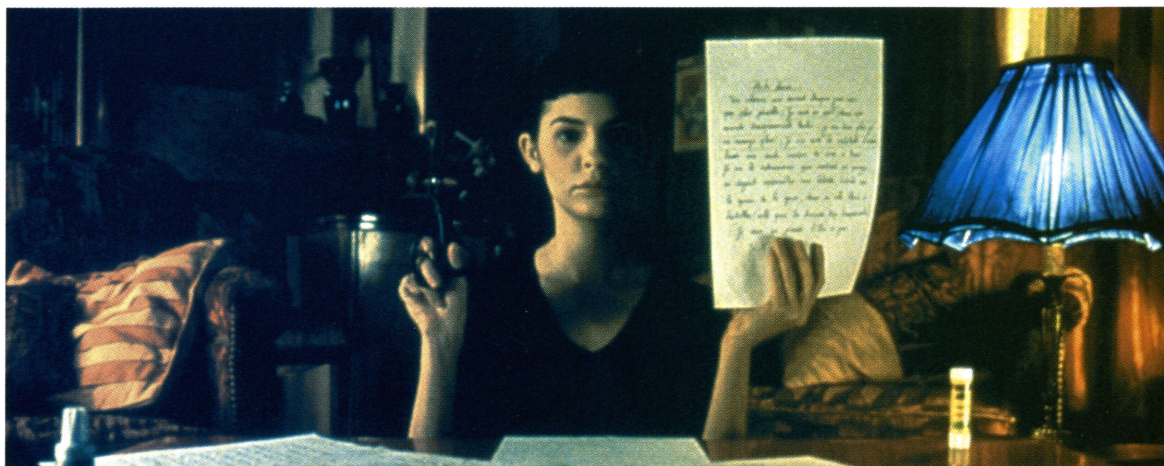
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A Magical Paris

by Jon Silberg

Cinematographer Bruno Delbonnel had a large pair of shoes to fill when he agreed to shoot *Amélie from Montmartre*, a modern-day fairy tale directed by Jean-Pierre Jeunet. Jeunet's previous features *Delicatessen* and *City of Lost Children* were widely acclaimed and helped bring cinematographer Darius Khondji, ASC, AFC the international renown he now enjoys. Khondji was not available when Jeunet began planning *Amélie*, so the director offered the job to Delbonnel, with whom he had worked on some commercials.

Though Delbonnel and Jeunet had been friends for more than 20 years, the cinematographer worried that *Amélie*'s 20-week shoot and extensive post could jeopardize their friendship. Delbonnel points out, "I'd lit most of the shorts he'd done, and we'd done commercials together so I knew we could do good work, but this was on a much larger scale." Furthermore, Delbonnel admits to being somewhat intimidated by Khondji's

work and reputation — until, that is, he and Jeunet actually began shooting. "Jean-Pierre saw how I'd lit the set, looked at the Polaroids and said, 'I trust you. Let's forget about Darius completely and make a beautiful movie.'"

Amélie (Audrey Tatou) lives in a unique, fairy-tale world that looks like contemporary Paris but feels almost magical. "We wanted the whole film to look very warm with very rich colors," Delbonnel explains. "Jean-Pierre didn't want quite the same darkness that's associated with his previous films. He likes contrast and density in the images, and so do I, but we wanted to go for an almost storybook feel."

In fact, the entire film is bathed in a green-gold tone that was achieved in part by digitizing the finished negative and "timing" it in the computer to achieve a look that couldn't be obtained through any photochemical process.

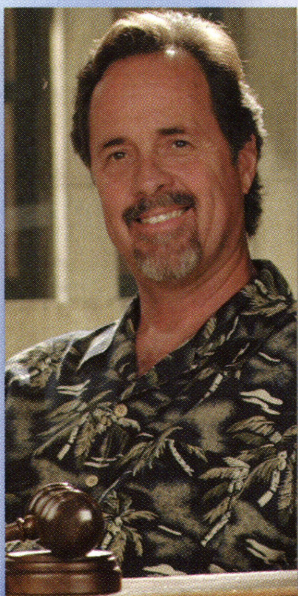
Early discussions about the look of the film had a lot to do with how Paris would be represented. The city is an integral part of the film's feel, but the reality of contemporary Paris did not suggest

what was necessary. "Paris is no longer the city of light," Delbonnel observes. "It's really a gray city with very dark walls and stone. We wanted everything to have a very warm, golden look."

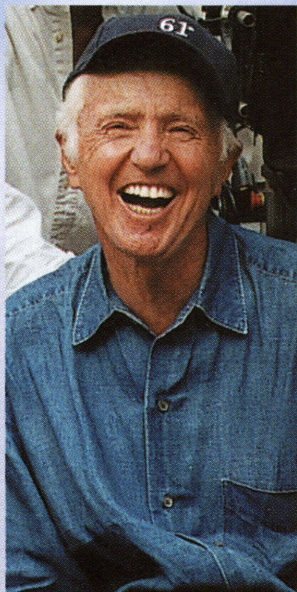
While shooting Jeunet's previous films, Khondji had relied upon photochemical methods (particularly Technicolor's ENR and LTC's NEC processes; see "Soup du Jour," *AC* Nov. '98) to intensify contrast, but Jeunet told Delbonnel that he didn't want to go that route on *Amélie*. The cinematographer explains, "Processes like ENR and NEC are heavy in terms of cost and the amount of light you need, and also in terms of what you need in front of the lens — such as the [contrast-altering] Varicon and tools like that. Jean-Pierre didn't want to work that way, but he didn't want to just shoot it straight because that wouldn't capture the look and mood that makes the whole story work. We've both done a lot of work in commercials, though, and we knew that we could do what we wanted in telecine. Until very recently, that approach wouldn't have done us any good unless

Amélie from Montmartre, which stars Audrey Tatou in the title role, is set in contemporary Paris but is designed to look like a fairy-tale world. The filmmakers decided to give the entire film in a green-gold hue, which they achieved through digital color-correction.

Photos by Bruno Calvo, courtesy of Miramax Films.



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Actress Tatou and director Jean-Pierre Jeunet prepare for the next setup.

we were finishing on video, but films like *O Brother, Where Art Thou?* [see AC Oct. '00] had used telecine-style color-correction at high resolution and transferred the result out to film. We decided to do something similar."

In fact, the entire cut neg would be taken to Dubois, Paris, and scanned into data files at 2K resolution on a Spirit DataCine. Every bit of the show would then be color-corrected by Didier Lefouest, using a 2K high-definition (Pandora) Pogle color-correction system. Then the digitally timed film would be recorded back out to negative using a new Arrilaser recorder. The resulting negative would then be timed traditionally to compensate for the inevitable shifts between the look of the perfected data version and the look that the images would have on film.

Though this type of procedure is gaining momentum, it is still in the nascent stages for feature-film work; thus, only a limited amount of testing was possible before *Amélie* began shooting. Dubois wouldn't even take possession of all the gear required until after principal photography had commenced. Refusing to go into the project completely blind, Delbonnel and Jeunet put together about 1,000' of tests, which they were able to scan with a Spirit DataCine, color-correct with the 2K Pogle board and output to film with the Arrilaser; they performed each step

at different facilities spread out across Europe, wherever a particular piece of equipment could be found. The travel alone was costly and arduous, so shooting commenced with fewer tests than desired.

Delbonnel decided to get as much of this green-gilded look as possible in-camera for two reasons: "First, I thought that maybe this process wouldn't really work; maybe there was some problem we hadn't anticipated that would make it impossible to do what we'd hoped in post. Then we'd have to try to do it in the lab, and manipulating green in the lab is very difficult. Second, I always believe in doing as much as possible during the actual photography, because I think the result looks better than when you do all the manipulation in post. When I'm going for a pronounced effect, I want to go at least halfway on the negative before I start manipulating it in post."

Testing indicated that there was a greater difference in the behavior of film and video contrast than Delbonnel had originally suspected. He notes, "Sometimes when we looked at the video, we had white that didn't hold, but it worked when we went out to film." He also decided that the green seemed more pronounced on the monitor during the colorist sessions than it did after being recorded out to film. "During the telecine process, we learned that we'd have to add more green than we wanted so that the final [film-out] had the right amount. If we'd made it look just right on the monitor, we wouldn't have had enough green in the final film."

Perhaps the most important discovery during testing was the revelation that in order to achieve the look they wanted, the filmmakers would have to significantly decrease the contrast of the original camera negative by "almost as much as you'd need to using the ENR process." The cinematographer had to tailor his stocks and lighting approach to this strategy, so he therefore opted to capture relatively low-contrast images that could then be enhanced in post.

He decided to shoot Kodak's fairly low-contrast Vision 320T 5277 in the studio and Vision 250D 5246 outside.

Though the 46 is not really thought of as a low-contrast stock, Delbonnel felt that the extreme flatness of the springtime light in Paris would make up for that. He consistently used an Antique Suede #2 filter with the 77 for interiors, and a Coral #3 filter with the 46 outside. "The idea was to get both stocks to look about the same," he says. "I generally used a polarizer for exteriors and some very light diffusion for close-ups inside and out." To further warm things up, his interior lights were generally gelled with quarter or half CTS, in addition to some greenish material to help build the overall green/gold look.

He lit everything within a three-to four-stop range — though both 77 and 46 have considerably more latitude than this — to allow for the contrast buildup in post. "That is really not my usual way of working," he says of the narrow contrast range. "I prefer to use the whole range of the neg, which would mean more like eight stops. In this situation, I could never let anything go beyond two stops over or under unless I wanted it to go really black or really white — then I could let the light live."

Delbonnel says that he and Jeunet made an effort to include the entire creative team in designing the film's overall look. "We knew from our tests that the camera filtration and all of the color-correction [designed to build up this gold/green look] would necessarily require taking a great deal of blue out of the production design, costume design and makeup. If the entire creative team hadn't worked together so well, the whole effect would have been lost."

A very bright-blue costume, he explains, would read in the final print as being very dark blue. A wall or piece of set design (such as a prominent blue vase shown in an apartment) would have to be specially designed with the post process in mind if it was to show any blue at all. Delbonnel recounts filling this blue vase with foil to enhance its reflectivity and then pouring extra light on it so that its beautiful hue could survive. As a result of the camera filtration and the Pogle sessions, even skin tones would take on an overly warm, almost inorganic quality

Denny Clairmont on why he ordered forty sets of Cookes:

“By the time we get them all, it will be 520 lenses, far and away the biggest lens order I’ve ever placed”

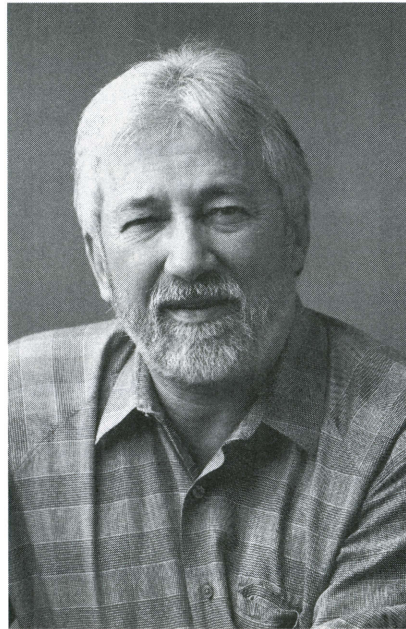
“**E**veryone’s familiar with the focus helical,” says Denny Clairmont. “From 3 to 4 feet, it’s a substantial turn of the barrel. From 4 to 5 feet, a noticeably smaller turn — and so on.”

“By 10 or 15 feet, your witness marks can be too close for comfort. From time to time, people have said: You know, Denny, it would be a big help to have wider spaces between the numbers — and more *even* spacing.”

“So in 1991, when Cooke told me they were beginning work on a new range of prime lenses *and asked for input*, I went to the factory to discuss what I had learned from working with cinematographers and with lenses of all kinds. An opportune moment to tell Cooke what our customers had been telling us.”

“Cooke wanted to give cinematographers what they ask for”

“Otto Nemenz also visited the factory; and the Cooke designers came to his place and mine. They clearly wanted to make use of what we had learned in Hollywood and elsewhere.”



Denny Clairmont

“The best lenses I have ever seen”

“It was at the first of those meetings that I wondered aloud whether the focussing might be done with a cam, to get wider spacing and more even spacing. For twenty years, I had been looking at the non-linear cams (for changing focal *length*) inside the zooms we serviced.”

“Of course, it’s one thing to suggest trying cams. It’s another thing to design and build a cam system that works — and works smoothly. *But they did it.*”

“At one of those early meetings, I ran some test footage that we had shot (with older lenses) on Hollywood Boulevard at night — brightly lit store windows and streetlamps, car headlights, to emphasize what cameramen *didn’t* want: flare and ghosts. We asked their optical designers to concentrate on those.”

“And that’s what they did — brilliantly. Looking at early prototypes, I knew those lenses were going to be extraordinary,” says Mr Clairmont, “But they’re more than that — *they’re the best lenses I’ve ever seen*. They’ve helped us get shows we wouldn’t have got without them, including several that would have gone to Panavision. I’ve received about twenty-five sets so far. I can’t wait to get all forty.”

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The Vertical Ray of the Sun chronicles the complex dynamics at work in the relationships of three sisters. One of them, Liên (Tran Nu Yên-Khe), appears to be unusually close to her younger brother (Ngô Quang Hai).

if makeup wasn't formulated to give the actors cold, pale complexions. A visitor to the set might think that the actors were playing aliens or very sick people, but this didn't cause any panic or complaints. "Everybody understood what we were doing," says Delbonnel. "Jeunet is involved in everything that happens on his set, and he makes sure that everybody is part of the process."

Delbonnel decided to shoot the film with highly precise lenses. "We used Zeiss Ultra Primes, even though my first choice would have been the Cooke S4 series," he says. He felt that the extreme, almost "clinical" precision offered by the Zeiss lenses was less appropriate for this fairy tale than the warmer, softer feel offered by Cooke's instruments. "However, we didn't know if we'd lose some definition in post, so we wanted to get every bit of definition into the negative so the pictures would still be crisp. As it happened, we didn't really lose any definition, so if I did this film all over again I would probably use Cookes!"

Delbonnel shot entirely with prime lenses almost exclusively wider than 32mm because Jeunet loves the perspective and depth they offer. "If you put the characters inside a set, you want that set to be part of the story — you want to bring the audience in there too. Jean-Pierre and I both hate a lot of soft background. Of course, there are stories where you might want to put the focus exclusively on the actor, but not here. The sets, the streets, are all part of the story."

Virtually all of *Amélie* from *Montmartre*, tight close-ups included, was shot with lenses that many would consider very wide. "Sometimes the actors were less than two feet from the camera," Delbonnel says, adding that he appreciates how close the Zeiss Ultra Primes can focus. "Jean-Pierre is one of the few directors who can use a lens like an 18mm for a tight close-up. It's very difficult to do that without distorting an actor's face and making it look ugly. This is because he never has the camera at eye level — we are always above or below. If you position the camera that way, the perspective doesn't change the

actor's face, or it can change it in a good way. If you shoot someone at eye level with an 18mm lens, his face will definitely have the ugly distortion that people associate with wide-angle close-ups."

This style, he asserts, plays a very important role in shaping the characters and defining their relationship to the audience. There are a couple of shots in *Amélie* where circumstances forced Delbonnel to shoot Audrey Tatou with a much longer lens. Though many consider an 85mm lens to be within the perfect range for portraiture, Delbonnel says that Jeunet will only use such a "telephoto" lens in an emergency. The cinematographer says that the duo was not happy when they were forced to use an 85mm to make two shots of Tatou inside a railway station. "Her face looks completely different," Delbonnel laments. "She is still beautiful, yes, but this is not our Amélie."

Jeunet and Delbonnel share a particular fascination with faces. Close-ups were always relit regardless of how the light seemed to be falling in an establishing shot. "I always want to improve reality when I shoot an actor's face," says Delbonnel. "Every time there is a close-up, I light specifically for the close-up even if it may not [cut seamlessly] with the wider shot. There may be some exteriors where I don't light at all. I may say that the light's just right as it is, but I will always light the close-ups."

"Sometimes I will go pretty far in this way. In this film, for example, there is a shot of Amélie right before she is about to help a blind man across the street. We track from fairly far away into a close-up of her face. The wide shot is all natural light, but I had lights mounted onto the camera so the lighting on Audrey's face would change as we got closer. By the time we got to her close-up, the light was completely different. It was a bit brighter, so by the end of the shot it feels as though she's almost glowing."

One might ask Delbonnel, "What about realism?"

"Oh, realism," he sighs. "Jean-Pierre and I don't care much for realism."



A Midsummer Vision of Vietnam

by Bob Davis

For those who know Southeast Asia only as the site of America's most controversial military action, Tran Anh Hung's visually rich, exquisitely paced *The Vertical Ray of the Sun* must seem like a film caught in a time warp — a hallucinatory projection of a post-colonial Asian history untouched by the turbulent politics of the Sixties. It is Tran's third film, following *The Scent of Green Papaya*, which earned a 1994 Oscar nomination for Best Foreign Film, and *Cyclo* (see AC Sept. '96), which won a Golden Lion at Venice.

Vertical Ray unfolds during the course of a hot midsummer month that is bounded by the anniversaries of three sisters' parents' deaths. Each sister harbors a secret that threatens to disrupt the status quo. The oldest, Suong, conducts a bizarrely ascetic affair while her husband, Quốc, a nature photographer, is away on lengthy shoots; she refuses to let her lover speak, and covers her face with a silk scarf through which he must kiss her. The middle sister, Khan, hides her pregnancy from her sisters until she becomes convinced that her husband, Kiên, a writer who can't seem to finish his first novel, has cheated on her during a research trip to Ho Chi Min City. The youngest, Liên, a flirtatious 23-year-old, searches for a boyfriend just like the handsome brother in whose bed she often awakens.

Tran contacted cinematographer Mark Lee Ping-Bing, a Southern California resident who hails from Taiwan, about shooting *Vertical Ray*

Photos by Guy Ferrandis, courtesy of Sony Pictures Classics.

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Lee rarely adds fill or backlight because he thinks they look false.

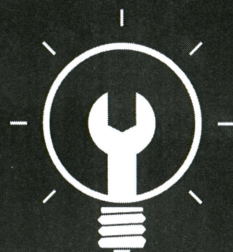
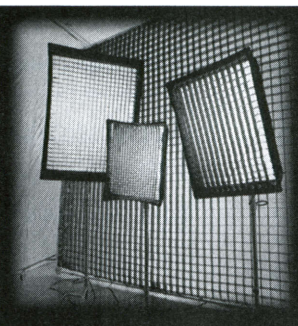
Lee maintains that the best cinematography flows out of the production designer's work, and instead of using gels he tries to achieve organic color effects by bouncing his light off of elements of the sets. "Before each day's shoot on *Vertical Ray*, I'd do my homework, generate plans for the lighting and talk to Tran to get a sense of what he wanted," he explains. "But when I got on the set after the art department had completed its work, those plans sometimes seemed shallow or forced."

The cinematographer often asks the art department to paint boards with hues derived from the set so he can bounce light off of them. In one erotic scene set in a floral bath, Suong's face inches toward her lover's and passes through distinct fields of faint blue, green and orange, all created with reflected light. Lee has even used magazine covers and occasionally sandbags as reflectors.

Tran wanted to emphasize Hanoi's tropical greens and evoke its stifling humidity in *Vertical Ray*. At the same time, the director wanted a strong impression of sunshine, as the film's title suggests. "The problem was that it almost never stopped raining during the shoot!" Lee recalls. There were other obstacles as well: when Lee first saw the location Tran had picked for Suong's backyard, the foliage was so dense that almost no sunlight could penetrate it. Lee asked his crew to trim the leaves back, but when he arrived there a few days later to shoot, the sky was characteristically overcast. The "sunlight" in those scenes was therefore totally artificial, created with one 4K and one 6K Cinepar HMI. "I shined them down onto the thick vegetation, overexposing it a couple of stops, causing its slightly different shades of green to saturate," Lee explains. "The light bounced off the leaves and cast a subtle green tint onto our actresses' faces. Of course, we didn't 'correct' this in the timing."

To ensure a consistent grain structure, Lee shot the entire show on Kodak Vision 500T 5279, rated normally. He employed a Tiffen Tangerine #1 filter

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Liên enjoys a contemplative moment. Cinematographer Mark Lee Ping-Bing says he prefers to color images by bouncing light off of colored elements in sets rather than using gels.

instead of the traditional 85; he stopped using the latter more than a decade ago because he feels that its widespread use limits the range of hues we see in film. Lee notes that the Tiffen color filters should always be tested, as the manufacturers recommend, because the colors of the same filter from different shipments are not always the same.

Lee thought the Panaflex Platinum camera package Tran rented might have been a touch extravagant considering the production's tight budget, but the director insisted. Tran

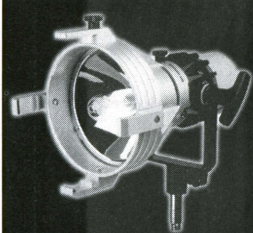
had used Panavision equipment on both of his previous films, which were shot by Benoît Delhomme, AFC, and was confident it would render quality images. Lee, however, was worried that the Panavision equipment might be *too* good, and that the lenses might reveal too many details. "One day the actress who plays the youngest sister got a pimple on her forehead," Lee recalls. "Tran, who happened also to be the actress's husband, asked me to do what I could to make it less obvious. I prefer not to use mist or soft-focus filters, even in situations like this, because they diffuse the light, flatten it out, and generally brighten the image and cause it to lose contrast." Instead, Lee redirected the light to get some shadow on the blemished side of the actress's face. "Nonetheless, when we finally saw the footage, there it was!" he says with a chuckle.

Lee shot *Vertical Ray* almost exclusively with Panavision's 35mm Primo prime. He notes that he has hardly

touched a zoom lens in 10 years. He employed a 100mm macro lens for a couple of detail shots, such as the glistening skin of a plucked duck. "I wanted the images to feel as natural, as close to what the eye might see, as possible," he says. "I didn't want to distort the space."

In general, Lee prefers wide apertures, usually opening the lens to between T2.8 and T4, but sometimes even as far as T1.9. "I try to infuse the darker areas of the frame with maturity and the brighter ones with dazzle," he asserts. The wide apertures allow him to get highlights that are as much as five stops overexposed.

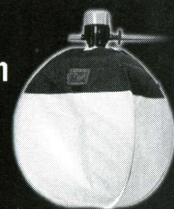
The most striking overexposure in *Vertical Ray* occurs at a lakeside location that distills the film's brink-of-eruption tone into a single image: steep, gray cliffs rip out of calm, blue waters, suggesting a Jurassic-era fusion of tranquility and simmering violence. Quôc, who is photographing indigenous flora, steps out from under his canopy and drifts toward the shore and the camera,



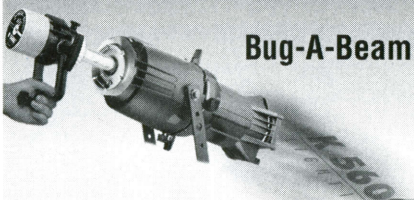
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slowly becoming so overexposed that his white shirt begins to glow.

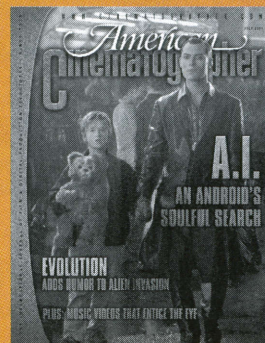
Lee didn't have a power supply at the lake, "just sun, clouds and some bounce boards, two of which were pretty hard to control. Of course, when [the actor] moved from the relative darkness of his tent to the brightness of the shore, there was an enormous difference in light values. Tran wanted to see details in the shaded area, so I had to set the aperture so that when the actor came out of the tent, he was significantly overexposed."

Lee didn't attempt to normalize the exposures. Instead, he and Tran decided that because this moment is when Quôc's civilized and uncivilized worlds stand face to face, it made sense "to correlate the light and that emotion, to illustrate that emotion through a 'camera language.'" Lee had planned to let Quôc overexpose by four stops. "During the rehearsal there was still a bit of sunlight, but as luck would have it, when we took the shot the light had

dissipated and we only got about two stops overexposure."

Late in the film, Liên and her brother Hai, both dressed entirely in white, dance through their apartment and pass into a thick shaft of light generated by a 1.2K HMI. Lee says that he and Tran justified the light by imagining that it was coming through one of the skylights typically found in many Vietnamese homes. On the other hand, the cinematographer admits that the scene is rather complex emotionally. "The story begins and ends in this room," he notes. "This sister has a kind of pure love for her brother, and Tran wanted to illustrate that purity in a most intimate way."

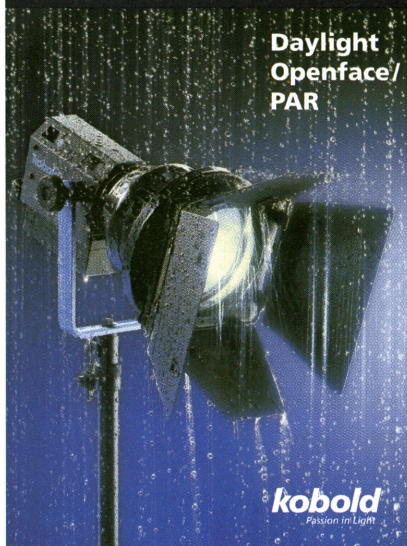
Still, Lee's main concern in lighting this room — and indeed, all of the sets — was to respect his initial sensual responses to it. "Each of the movie's sets gave me different vibes and made me light them differently," Lee concludes. "Maybe it's all about their feng shui!" ■



Errata

In our July coverage of *A.I.*, the caption on page 38 mistakenly identifies the setting of the photo as Rouge City. In fact, this still depicts androids David (Haley Joel Osment) and Gigolo Joe (Jude Law) at one of the future world's barbaric Flesh Fairs, where robots are destroyed for the public's entertainment. *AC's* executive editor will be shot from a cannon for this mistake.

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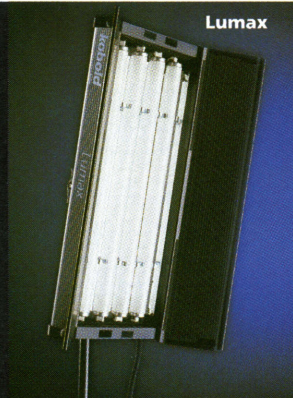
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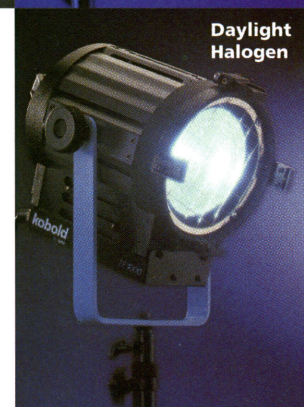
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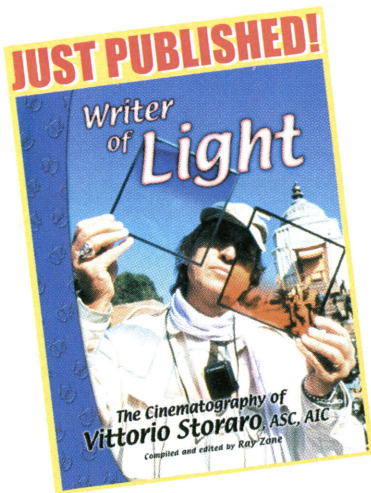
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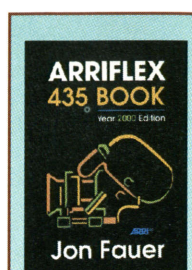
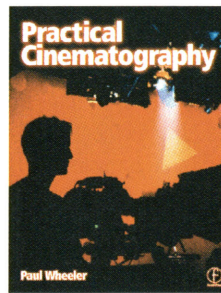
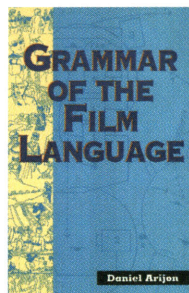
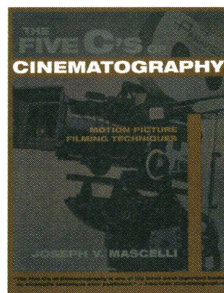
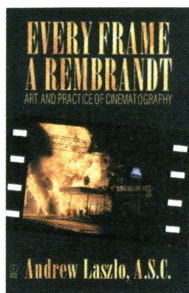
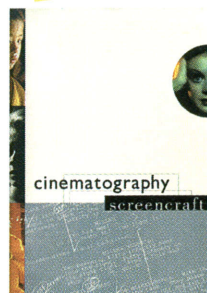


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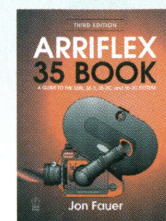
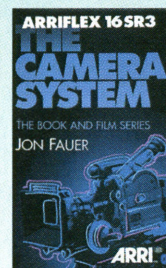
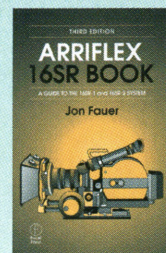
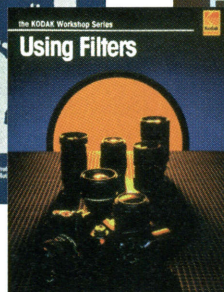
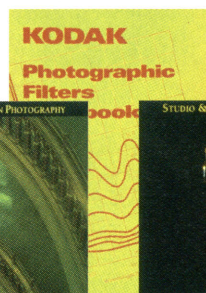
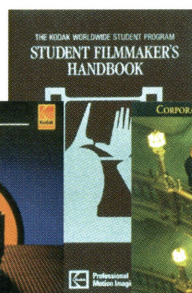
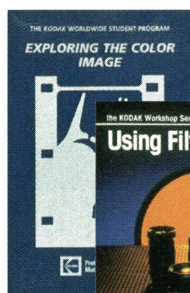
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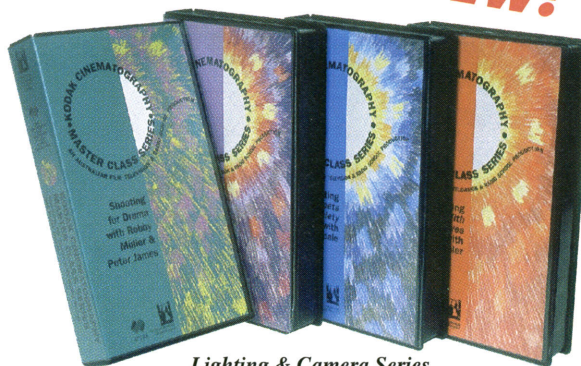
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Close Combat



HBO's intense 10-part miniseries *Band of Brothers*, shot almost entirely in England, examines World War II from the foot soldier's perspective.

by Jean Oppenheimer

Unit photography by David James, Jay Maidment and Keith Hamshere

HBO's World War II miniseries *Band of Brothers* transports viewers to the front lines in brutally realistic fashion, as it follows a single company of U.S. soldiers from their training in America through their first year of combat in Europe. The firepower was so intense at times — and the danger seemed so real — that even members of the crew forgot they were making a movie. Recalling a particularly harrowing sequence, director David Frankel says, "I was running with the camera operators as our guys charged a German-held village. There was a German machine gun high up in a church tower, and our guys were like fish in a barrel. Blanks sound as loud and scary as the real thing, especially when you're seeing men go down and the officers are still sending more in."

"At one point a soldier got hit and another guy ran out to rescue him. The camera operator was supposed to follow the action, but as he started to move forward he became so alarmed that he hid behind the actors. His instinct was, 'Oh God, they're shooting at me.' Needless to say, we had to cut. That was the moment when I felt what the horror of battle must be like."

Premiering on September 9, *Band of Brothers* focuses on the men of Easy Company, immortalized by historian Stephen E. Ambrose in his nonfiction bestseller of the same title. As members of the 506th Regiment, 101st Airborne Division, they were among the first American paratroopers trained for the war. When Tom Hanks and Steven Spielberg decided to produce a TV miniseries that would honor the hundreds of thousands of "citizen soldiers" without whom World War II could not have been won, they turned to Ambrose's book.

At a cost of \$120 million, *Band of Brothers* is the most expensive original programming venture in HBO's history, as well as its most

ambitious. Production on the 10 episodes, all of which were shot in England with the exception of a few scenes in Switzerland, began in April 2000 and wrapped eight months later. Academy Award-nominated cinematographer Remi Adefarasin, BSC (*Elizabeth*, *The House of Mirth*) and Canadian cinematographer Joel Ransom, CSC (*The X-Files*, *Harsh Realm*) split the 10 hour-long dramas between them. They shot simultaneously, and each cameraman had his own crew.

The producers wanted the same type of realistic look and feel that Spielberg had brought to *Saving Private Ryan* (see AC Aug. '98). "[They were after] that same kind of heightened contrast and lowered saturation," affirms Adefarasin. "A much-used phrase was: 'Like dropping a documentary unit into the past.' That was the approach."

The latest postproduction techniques were used to get a truly authentic look; the show's 35mm footage was scanned as 2K digital data that was color-timed at Kodak/Cinesite's digital mastering lab in London (see sidebar on p. 39). "Steven [Spielberg] didn't want to get

into the long-lens, high-speed, backlit feel, because that would have been too romantic," Ransom explains. "He didn't want to beautify war."

There were a few other ground rules: minimal use of cranes, German POV shots and slow motion. "I think Steven wanted the series to reflect the American soldier's subjective experience," theorizes Frankel, who was one of eight directors on the project. "That meant [making it] experiential for the audience as well. By using a crane — in effect, stepping back and seeing



Opposite page, top: An impressionistic shot places the viewer amid crack troops marching into battle. Executive-produced by Steven Spielberg and Tom Hanks, *Band of Brothers* exploits some of the documentary-like cinematographic techniques that Spielberg and Janusz Kaminski, ASC employed to groundbreaking effect on *Saving Private Ryan*, including the extensive use of handheld footage captured with 45- or 90-degree shutter angles. Opposite page, bottom: A pair of comrades-in-arms (Steven Walters and Rick Warden) prepares to blast the enemy. This page: According to David Frankel, one of the project's directors, Spielberg "wanted the series to reflect the American soldier's subjective experience. That meant [making it] experiential for the audience as well."

Close Combat

This page: Lt. Harry Welsh (Rick Warden) hunkers down in the combat zone. Opposite page: Easy Company holds the devastated town of Bastogne while surrounded by German forces. These digital composites, provided by Cinesite, show a sequence in which the troops receive a much-needed airborne resupply. The CG parachutes and C-47 planes were tracked into a shot of the battle-blasted town. The illustration at lower left shows low-resolution proxy representations of the parachutes, which were used to lay out the shots in real time. During the rendering phase, the proxy models were automatically replaced with higher-resolution versions. Smoke effects were added to the scene. (Note: Color timing of the series was not completed at press time, so these shots were manipulated in Photoshop to provide AC's readers with an approximation of the scene's actual timing, which will result in a bleached-out look with heightened blacks.)

things in context — you make it too objective. There were exceptions, of course, when it was important to have the height of a crane or to be able to manipulate the camera into certain positions.”

The majority of the combat footage was shot handheld. Ransom estimates that 90 percent of these scenes were shot with 45- or 90-degree shutters, a technique that Janusz Kaminski, ASC used in his Oscar-winning work on *Private Ryan*. Reducing the shutter angle has the effect of making action sequences punchier. “It gives a staccato effect to panning shots, and it pixilates explosions,” Ransom elaborates.

The first major fighting sequence occurs in Episode 2, which was shot by Adefarasin and directed by Richard Loncraine. The scene shows Lt. Dick Winters (Damian Lewis) hunkered over to avoid being shot as he runs down a long trench. Bullets zing by just above his head. The camera precedes Winters as he runs, catching him first in wide shot and then in a tight close-up of his face. A-camera operator Martin Kenzie recalls, “Our problem was the width of the trench and the length of movement it required. All of the usual tools you might use for that type of shot — dolly, quad bike, wheelchair — were too wide and not maneuverable enough for some of the tight corners. Running might have worked if it hadn’t been necessary to run backwards.”

“Joel Ransom came up with the idea of using a rickshaw, and special-effects supervisor Joss Williams and his men built it and made it work. They took two bicycle front-fork assemblies, built a frame with a seat and attached [about 15"] cycle wheels. The handles were extended at the front so that dolly grip John Arnold could run forward, pulling the rickshaw. He was doing all the hard work while I sat in the seat, facing backward, with a Moviemax SL [fitted with a 32mm



Zeiss Ultra Prime lens] in my lap. At one point, John parked the rickshaw in a siding, skillfully tipping me off [as I stayed on Winters], who I then began following from behind.”

To facilitate the work and avoid possible injury, Adefarasin encouraged his operator to use a liquid crystal display (LCD). “Using an onboard LCD monitor as a ‘viewfinder’ eliminates the need to keep your eye squeezed against the eyepiece, which is difficult during vigorous operating,” the cinematographer explains. “Mounting the screen to the front of the camera also helped when we had to move quickly to keep up with the troops. It also enabled us to do very low running shots without complicated rigging.”

England recorded its wettest year in history last year, and the constant rain posed its own set of hazards. “The trenches got waterlogged, and we had to keep pumping the water out,” Adefarasin recalls. “The mud was unbelievable! On the very first day of the shoot, I was helping to push a camera trolley up a muddy slope. Ben Wilson, my A-camera first assistant, was in front pulling, and he slipped in the mud. He didn’t even scream as I pushed the trolley over him.” (Fortunately,

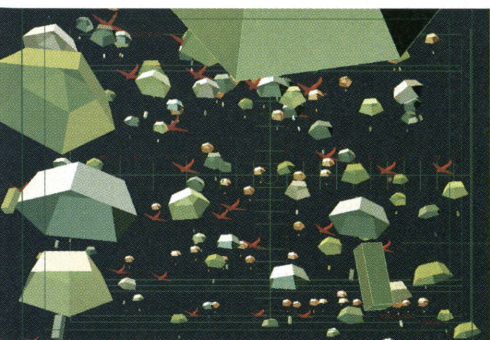
the soft mud gave Wilson a cushion.)

Episode 2 opens with one of the most nerve-rattling sequences in the entire series: Easy Company’s parachute jump into the Normandy countryside in the pre-dawn hours of D-Day. It was the company’s first combat jump and first taste of war.

To film the sequence, the production managed to find a mothballed C-47 plane. Crewmembers removed its wings — partially to eliminate some of the weight and partially because they wouldn’t be seen in any shots — and refurbished the interior. All but one of the interior C-47 scenes were shot inside the aircraft, which was housed inside one of two giant airplane hangars that were being used by the production as soundstages. The hangars were located at the former British Aerospace Aerodrome in Hatfield, England, some 30 miles outside London. The site, which the crew affectionately christened Hatfield Studios, also included a backlot where many scenes were filmed.

In order to suggest the bounce of typical aircraft movement, the crew placed the plane atop two separate motion rigs, which sat one on top of the other. Each rig produced a different kind of shaking and jostling. Directly beneath the aircraft was the first rig, an air platform consisting of a steel frame and 16 small air bellows. The plane “floated” on the bellows, which were round rubber units about 8" wide. Each was filled with a small amount of air, and over a wide area they provided tremendous lifting power.

Deflating and inflating the bellows very rapidly created a strong vibration. To produce an even stronger movement — an out-of-control tilting for moments when the plane was hit by anti-aircraft fire — the air platform rested on a gimbal positioned on the hangar floor. It could tilt 20 degrees in 2 ½ seconds, an extraordinarily fast movement considering that the plane’s fuselage



was 45' long. The hydraulic system that controlled the gimbal was operated manually. "You only need computer control if you have to repeat the exact same movement, and nothing was so tied-in that we had to have the plane in exactly the same position twice," explains special-effects supervisor Williams, who devised the dual rig.

Inside the fuselage, two rows of soldiers sat facing each other on benches. As the German fighter planes "attacked," filling the outside air with explosions and flak, the C-47 reacted violently. "Those scenes were hell to shoot," acknowledges Adefarasin. "We all came away with bruises. In fact, the shaking was so fierce at times that we had to use Hot Gears." It was in anticipation of just such circumstances that Adefarasin had suggested renting Hot Gears in the first place. "It's a very clever device that controls a geared head and can save the operator from injury," he comments. "It's also great for very awkward shots that are physically difficult. Its main beauty is that it's relatively cheap, so you can

keep it on standby."

Williams came up with a clever idea for making it appear as though flak was breaking the sides of the aircraft, right by the heads and bodies of the actors. He cut square pieces out of the aluminum fuselage and replaced them with pewter sheeting. When compressed air was blown into the pewter from outside the plane with several specially-rigged 40- to 50-pound pressure canisters, it created small holes that, given the circumstances, appeared to be flak, especially as the pewter peeled back when the shrapnel penetrated the plane.

The plane's pitching and rolling proved especially troublesome for focus puller Wilson, who wound up working almost entirely with the Arri LCS remote-focus system. According to operator Kenzie, "It's much easier to work with a remote-focus device when operating handheld. It also keeps Ben and me out of each other's way, especially since the inside of the C-47 was incredibly cramped.

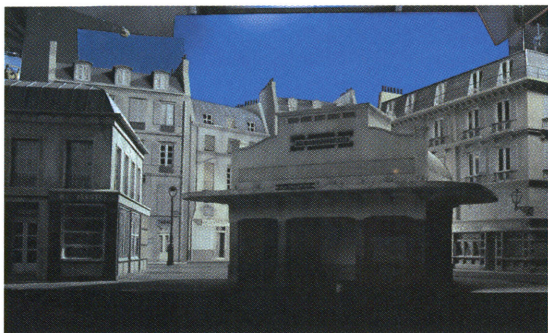
"The Moviecam SL was our

best friend throughout the shoot," Kenzie continues. "It's a very light and adaptable camera. Ben had some brackets made up, and by using the Arri Blue Handle system, we could quickly change between three handheld modes: conventional shoulder or high mode; low angle, backache, monitor-watching mode; and mid-height mode, when most of the camera is under your arm."

In addition to two SLs, each production unit had an Arriflex 535B. It wasn't unusual for all three cameras to be pressed into service at once; at times, as many as seven cameras were running. Lenses included a full set of Zeiss Ultra Primes (18mm to 180mm), a Canon 300mm, and Cooke 25-250mm and 20-100mm zooms. Arri Media in London supplied the cameras and lenses and "provided superb support," according to Adefarasin. The cinematographer also praised the lighting rental house, Lee Lighting.

Night sequences aboard the C-47 proved particularly tricky to light because of a historical fact: no lights

Close Combat



This composite by Cinesite shows Officer Richard Winters (Damian Lewis) exiting a metro station in Paris. The upper-left shot shows the bluescreen live-action element, with the scene's actors standing by a partial set; the shot at lower left illustrates the bluescreen (matte) motion-control pass of miniature French buildings; and the shot on the far right shows the finished composite.

were allowed on inside the aircraft during the war, lest they give away the plane's position to the enemy. While the production cheated a bit by using a tiny Lightstream torch held by the cinematographer inside the aircraft, these scenes relied primarily on units set up outside the plane, which, between the gimbal and the motion rig, sat some 20' above the floor. Par cans and 10Ks were attached to a jib arm mounted on a separate gimbal, so that the lights could be moved up and down and not in concert with the plane's movements. Gaffer Jimmy Wilson augmented the illumination with three Lightning Strikes units and some 1K Pars, the latter representing flak.

According to Adefarasin, it was difficult to keep light coming through the plane's small windows with any regularity. "We had to find angles that would make the light work when the plane moved, but still look 'real.' We placed the Lightning Strikes units at different angles. I feel it's important that they don't always look the same brightness or color, so we varied the intensity and color.

Full, half and quarter CTOs were used, and a frame of .6ND was waved in front of two of the lightning units to create a more organic feel."

After being struck repeatedly by anti-aircraft fire, another plane suddenly bursts into flames and begins to dive. A fireball tears through the cabin from front to back, an effect created with a propane flame projector. Two cameras were locked off in the tail section, filming the fireball as it hurtled straight toward them.

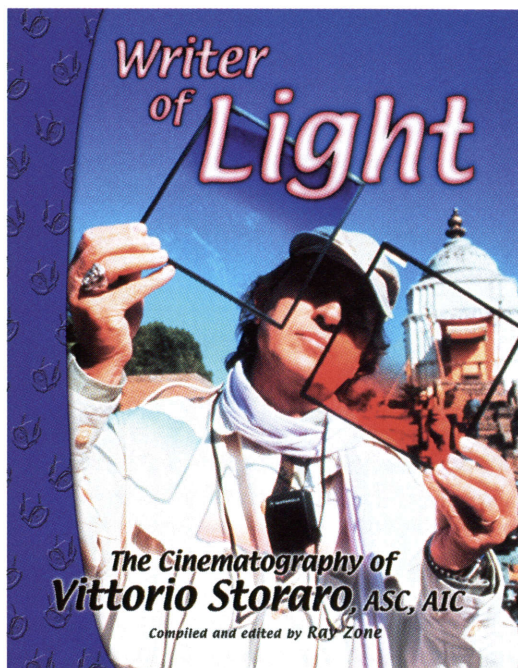
The challenge Adefarasin faced was "having enough light in the plane so that when the ball lit up, there would be enough stop to hold the textures in the flame. I shot it on Kodak [Vision 200T] 5274 stock at around T8. We lined the rear wall of the C-47 with heavy-duty aluminum foil to throw light back onto the stunt men's bodies. We used some older Zeiss lenses and optical flats, just in case."

In addition to the 5274, Adefarasin used Vision 500T 5279 and Vision 800T 5289 on the show. He and Ransom chose the same film stocks, though each arrived at his decision independently. Ransom considered using Fuji stock on the first episode, the only one set in the United States (although it was shot in

England). Ultimately, however, he decided that the difference would be so subtle — especially given what digital colorist Luke Rainey could do in post — that he stuck with Kodak. Between the two units (and a model unit headed by cinematographer Nigel Stone), two million feet of film was exposed during the production.

Episode 7, which documents the Battle of Foy, was one of the most combat-intensive episodes in the series. Shot by Ransom and directed by Frankel, it was set during the winter of 1944-45. The men of Easy Company were literally living in foxholes outside Bastogne, and they were short on food and ammunition and had no winter clothing. One-third of the episode was filmed at exterior locations, and the rest was shot on a magnificent woodland set designed by production designer Tony Pratt. The faux forest, which was also the setting for most of Episode 6, filled an entire hangar at Hatfield Studios.

The hangar was a 300-square-foot building that stood 50' high, and the forest set filled the entire structure. It took four weeks to dress the set, which consisted of several hundred real pine trees and 250 trees built by the special-effects department. A painted backdrop covered all



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Close Combat



The crew dollies past actors positioned in front of a bluescreen backing. Extra scenic ambience would be added in post.

four walls of the hangar. The hangar floor was covered with thousands of tons of dirt in order to create a raised forest floor. At a depth of 5', the dirt carpeted the entire set, stopping some 10-15' from the painted backdrop. Railroad ties, stacked one on top of another and camouflaged with dirt, created a kind of restraining wall around the manmade forest floor. It was there that electricians hid 2K and 5K lights aimed directly at the painted backdrop.

American Cinematographer's set visit coincided with the filming of Episode 7. The forest set was breathtaking, both artistically and from a lighting standpoint. Gaffer Wilson, who has worked with Adefarasin for 12 years, was brought in early to design and rig a full lighting grid that would cover the entire ceiling of the hangar. Wilson's first concern was weight: the hangar was 50' high but had only one central support, so the lighting gantries had to be tied into the building's existing steel work. It took rigging gaffer Barrie More five weeks to build the grid, and another several weeks to hang the lights.

"We decided to light the forest canopy with 500 space lights, each of which had two feeds, in order to give us three light levels — 1,600 watts, 2,400 watts and 4,000 watts — each with quarter bottom diffusions,"

Wilson details. "All of the perimeter space lights had black skirts, while the interior lights had white ones. We lit the painted backdrop with 2K and 5K Skypans, which again gave us three light levels [for day, dusk and night scenes].

"Backlight and top sunlight were generated by 100 CP-61 Par cans, 30 CP-61 Maxi-Brutes, and eight quarter Wendies, all of which were on dimmers and could be moved around the grid as needed. Power was supplied by four 1.2-megawatt Agreco blimped generators, one in every corner of the hangar. Each one had a 1,000-gallon fuel tank that had to be refilled every two days.

"We ran a total of about 26 miles of cable. To enable us to work quickly and to change from day to night conditions, we had a four-man crew on the top of the grid at all times and a six-man crew on the forest floor. The first problem we discovered was that standing among 500 snow-covered trees and trying to relate a position to the grid crew was difficult. We therefore made a numbered grid system and communicated by radio, which worked great."

For daytime scenes, Ransom moved 12'x12' bounces around and aimed 5Ks or 10Ks into them. For

Virtual Coloring

The miniseries *Band of Brothers* was not only shot in England, but all postproduction was done there as well. The 10-part drama was shot on film, and then, in a scenario that is becoming increasingly commonplace, it was digitally color-corrected and manipulated. Going a technological step beyond the recent *O Brother, Where Art Thou?*, technicians working on *Band of Brothers* utilized 2K digital data courtesy of Philips' Specter, a data-storage device that allows "virtual" access to a scanned negative. (See "From Film to Tape," AC May '99, for more on the Specter.)

"The Specter is essentially a Spirit without wheels — the electronics of the Spirit but with disks instead of film," explains *Band of Brothers* colorist Luke Rainey of Kodak/Cinesite's new digital-mastering lab in London. "It's also called a 'virtual telecine' because it has all the functionality of the telecine except it [contains] data rather than film."

After the episodes of *Band of Brothers* were edited on the Avid and a cut negative was produced (with 17-frame handles), the negative was scanned at 2K resolution on a Philips Spirit Datacine and the digitized material was loaded into a giant server. For the final coloring and assembly, the filmmakers then utilized the Specter to call up the desired shots and on-line assemble them according to the edit decision list (EDL) provided by the editors. Both the MegaDef grading system and the Pogle control-corrector — which regulates both the Specter and the MegaDef — are products of U.K.-based Pandora International.

"The process of calling up the shots is entirely automated," says Rainey. "The Specter comprises

more than 3,000 gigabytes of hard disks to store the 1920x1440 images, a control system which enables us to play these images in real time, a basic edit system that automatically assembles the shots in the order dictated by the EDL, and a very comprehensive grading and reframing system."

Visual-effects shots were also loaded into the Specter as they became available and were matched to their previously timed background plates. Opticals — such as wire removal, speed changes, adding camera shake, etc. — were then pulled into the Specter. When everything was finished, the episode was output to HD-D5 tape. From there, it could be played out in a wide variety of delivery

"I wanted to keep the skin tones more natural than other parts of the picture, so I [often] isolated skin tones and desaturated the remainder of the picture."

— Colorist Luke Rainey

formats and aspect ratios.

"The most important thing on this show was to keep the viewer close to the characters," Rainey notes. "For this reason, I wanted to keep the skin tones more natural than other parts of the picture. Because I can select any entity within a frame and manipulate it separately from the rest of the picture, I would isolate the skin tones and desaturate the remainder of the picture. If there is any other color or object that should be noticed — such as the mailbox in the battle scene of Episode 4 — I'd bring that back as well."

Cinematographer Remi Adefarasin, BSC, who alternated shooting episodes with Joel Ransom, CSC, was concerned about how green

leaves and fields would photograph at night. "In the spring, the trees and grass are lush and light, and when backlit they look like a cartoon," Adefarasin observes. To solve the problem, Rainey significantly reduced the color green throughout the series and timed down highlights in foliage in night scenes.

"Greens tend to overpower the pictures," agrees the colorist. "Of course, when you take color out, you lose apparent contrast, so I sometimes used the greens in a slightly distorted manner, bending them toward another color, making them more ochre or olive, and thus put a wash behind the foreground characters, who were wearing uniforms pretty much the same color as the background. I then flared out the skies to create a layered effect."

Electronic "grad filters" (typically called Power Windows, which is the name they're given in da Vinci color-correctors) were used extensively throughout the timing process. These work in the same way that a conventional grad does; however, instead of applying a color effect across the whole frame, it can be feathered in from an edge or even placed over an object and tracked. Rainey sometimes did this to reduce highlights on the side of a face. In wintry episodes, the filter effect allowed him to flare the snow without affecting the trees.

The data aspect of the process is the key that enables Rainey to do the things he does. He adds that when dealing with video in the past, he was always limited by color depth (i.e., the palette of colors available). But by working with virtual 2K data, he can be much more precise in composing the color imagery of a shot. He notes that "every shot in all 10 episodes contains at least four layers of color effects, and often as many as eight. Blacks are squeezed, whites are flared, skin tones are manipulated and grads are added."

— Jean Oppenheimer

Close Combat

Top: Dolly tracks help the crew guide the camera past a tank, which rolls over a sturdy wooden track. Bottom: Capturing a close-up view of action in the field.



some nighttime sequences, he turned off all of the grid lights and simply illuminated the painted backdrop to achieve a sense of depth. He put smaller lights — Peppers, 300s and Babies — on the actors.

One scene late in Episode 7 finds the Americans charging out of the woods, barreling down a hill and storming the nearby town of Foy, where the Germans are holed up. It sounds simple enough, but the sequence required shooting in three separate locations: in the forest set, on the backlot, and in a real pine forest located about 20 minutes away from the set.

The shots of the soldiers walking through the woods prior to the assault were filmed on the forest set.

The shots of the men running out of the woods and down the hill, however, were filmed in the real forest. The camera operators were located on the side of the hill, filming the men as they charged out of the woods and down the hill. For the actual assault on Foy, cast and crew moved to the backlot, where the town had been recreated. The cameras were now behind the Americans, revealing their POV as they ran toward the town. It took three weeks to film the entire sequence. “We had to make all three locations look like one place,” says Ransom with a laugh. “For me, the most difficult aspect of the entire series was waiting for the clouds to gather and give us a soft, even light.”

To help foster the illusion that the activities were all taking place at one site, certain landmarks were carried from one exterior location to the next, so that in either direction the soldiers (and viewers) looked, they’d see the same haystack or house. “It worked pretty seamlessly,” marvels Frankel. “We decided to do it that way because the backlot had no pine trees at the top of the hill, and it was important to see our guys come *out* of the forest because we had spent so much time with them *in* the forest. The alternative would have been to create the forest with visual effects, but I didn’t have great confidence in that because it would have limited the number of times we could see the men streaming out of the woods. There are only so many CGI shots that can be budgeted!”

Maintaining a consistent look wasn’t easy, and not simply because the camera was moving from natural light outdoors to the interior of a studio. A second consideration was that Ransom knew he would be shooting with 45- and 90-degree shutters. In the end, he decided to push the 500 stock one stop. “I knew I was going to need the extra stop to go with the shutters and/or any [non-standard] speeds we might decide to use. Pushing the stock one stop brought me up to 1,000 ASA, which introduced a consistent level of grain throughout the entire episode.”

The attack scene was shot with five cameras. “The base stop at the standard 24 fps/180-degree shutter angle was T5.6 ½, but shooting with a 45-degree shutter took it down two stops to 2.8 ½. I didn’t want to shoot at 5.6 ½ in the studio unless we really needed the stop, like for a really long-lens shot, so I would ND it down. When we did regular scenes with the shutter at 180 degrees, I would just ND it down to 2.8 ½. On the wider shots I’d let focus pullers Sean Connor and Alex Howe decide for themselves.”



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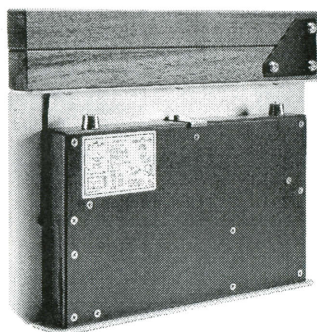
While directing Episode 5, Tom Hanks consults with first assistant director Richard Whelan.

Three huge artillery barrages took place on the stage, one at night and two during the day. In one 20-second stretch, the special-effects unit set off more than 100 explosions. Ransom enhanced these explosions with Lightning Strikes to give the scene an added sense of horror. "I think we used the 70,000-watt units," he says. "They generated a tremendous burst of light." The next day he and his crew moved to the real forest, where the special-effects team set off 50 more explosions. Shots from the two locations were then intercut.

According to gaffer Wilson, the biggest exterior lighting setup occurred in Episode 8. Directed by Tony To, who also served as one of the project's co-executive producers, it concerned the American attack on the town of Haguenau in February 1945. The night of the actual assault was completely overcast, and to create some form of illumination the Army beamed searchlights into the clouds, which then bounced the light

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back down. "The searchlights gave an overall wash of light," Wilson says. "That was the actual light source and that's what we had to simulate."

Wilson came up with the idea of making a giant soft light, the equivalent of a 100K space light. It had to be able to shed light over a 300-square-foot area on the backlot. Dubbed the "Jimmy Light," after its designer, the unit was 20' wide by 12' deep and consisted of eight nine-light Maxi-Brutes, all wired to dimmers. "We hung the whole thing on a 200-foot crane, about 120 feet off the ground," says the gaffer. "The reach of the arm was about 80 feet. It was like an enormous, 20-foot soft-box. In addition to the Jimmy Light we had a full Wendy on a cherry picker, as well as a 24K Dino. I think I left them open, neither diffused nor corrected."

Not every episode of the series involves combat or enormous lighting setups. The first episode covers Easy Company's two-year training at home and introduces viewers to the unusually large cast of characters. "The guys are in training camp, and I wanted to make everything slightly brighter, with more light on their faces, and create a warmer, safer feel," says Ransom, who shot the episode for director Phil Alden Robinson. "Plus, we had to establish 30 actors in an hour so that the audience could recognize them before they started getting into a dark plane with black shoe polish on their faces!"

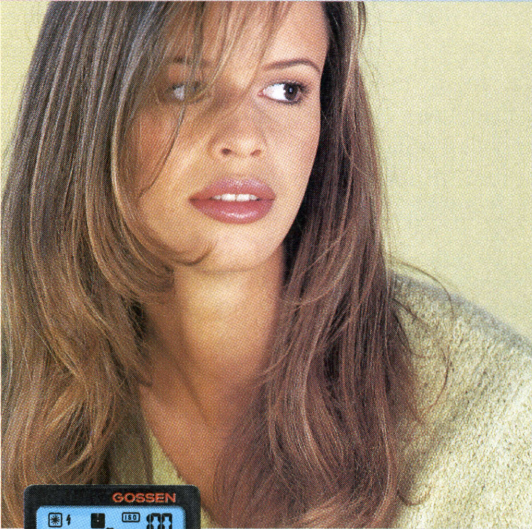
That happened soon enough. For the paratroopers' first nighttime practice jump, there were no lights in the aircraft at all. Ransom underexposed the 5279 three to four stops. "The theory is that you are lighting from the plane's windows, with the moonlight as the source. We put lights into bounces outside the windows — tungsten light, so we probably put a quarter- to half-blue on the lamps." Occasionally, the camera was slung from a kind of mini-rail dolly track, which Williams

had built on the ceiling of the C-47, running right down the middle of the aircraft.

A scene of troopers riding a train was shot in an actual boxcar, which was placed in one of the soundstages. "We used a poor-man's process," reports Ransom. "We had a greenscreen outside the windows — visual-effects supervisor Angus Bickerton would put in an appropri-

ate background later — and we put lights outside the windows with individual cyclodrums fitted over them. Each cyclodrum had various diffusions added to it, and we'd spin them to help change the density of the light and create the illusion of motion.

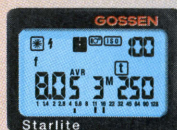
"Another trick is that you always want straps or something dangling down as the train moves,"



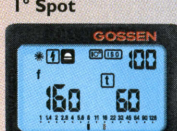
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A large lighting unit was hung from a crane arm to provide this night scene with an overall ambience.



he adds, noting that the grips were actually rocking the boxcar. "When you see something swaying like that, you believe the train really is moving."

Less amenable to creative solutions was the fog that hung over the backlot during Episode 5, which was directed by Tom Hanks.

"Hatfield is a low-lying site and very flat, ideal for an airfield," notes Adefarasin. "There are many ponds nearby, however, and a huge problem was that at night it got terribly misty, and any sort of backlight lit up the mist. And if you frontlight in that type of situation, it looks like flash photography."

The cameraman wound up using Maxi-Brutes and Dinos as backlight while keeping the key as high as he could. Episode 6, which was shot primarily in the forest set, presented a different scenario: fog had to be added. "You light the set and it looks great," says Adefarasin. "You roll in the smoke and it looks even better. Then when the camera rolls, another lump of smoke springs into frame and either makes the scene too light by raising the fog level, or too dark by filtering the lights! Sometimes it does both at the same time. I was constantly consulting my Minolta spot meter and yelling out two different stops."

Adefarasin also shot Episode 9, which was directed by Frankel and was an emotional experience for everybody involved. The setting is Germany in the waning days of the war; Nazi soldiers have already fled the area. The men of Easy are walking down a road and come upon a

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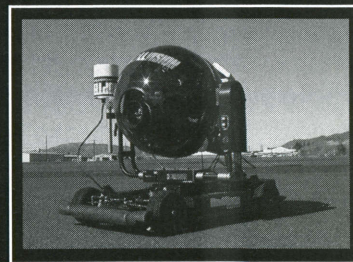
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concentration camp. "The concentration camp scenes were all photographed on Vision 200T, without an 85 filter, and then force-developed," Adefarasin says. "It's the only footage of mine that we force-developed. However, I didn't want to introduce more grain, so I went for a very full exposure. The lack of correction lent the images an exaggerated contrast and a bit of color distortion. You knew the men were going into a ghastly area.

"After a few relatively static initial shots, we went for a frenzy of handheld images, circling our troops and the camp survivors. However, we wanted the camera to respect their presence, as if the scene was really happening, so we never got into the actors' eyelines. For a scene in which Capt. Nixon [Ron Livingston] returns alone to the camp a short time later, we ran the camera at 27 fps. You should barely notice the slow-motion, but I felt it helped give



Cinematographer Remi Adefarasin, BSC (left) poses with two key members of his crew: longtime gaffer Jim Wilson and rigging gaffer Barrie More.

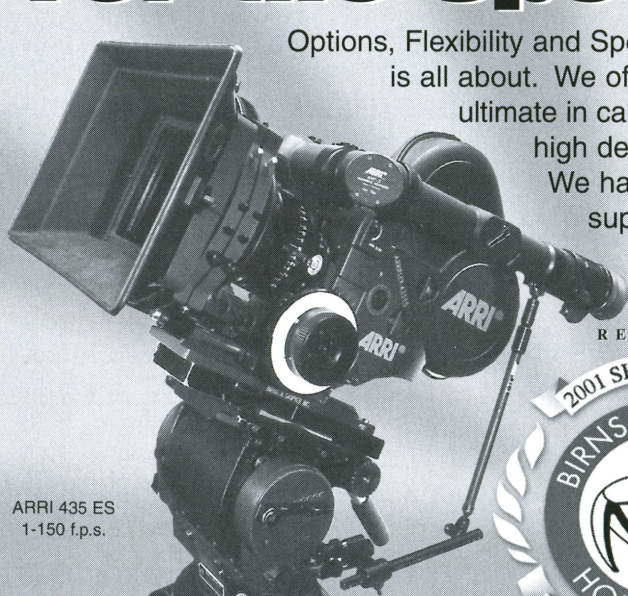
the sequence a haunting feel."

Adefarasin says Episode 9 was his main motivation for working on the miniseries. "Not a single shot is fired, yet the whole horror of warfare is evident in that hour. [We see] how lives are destroyed, how hate breeds, and the futility of killing our fellow man, but we also see how people

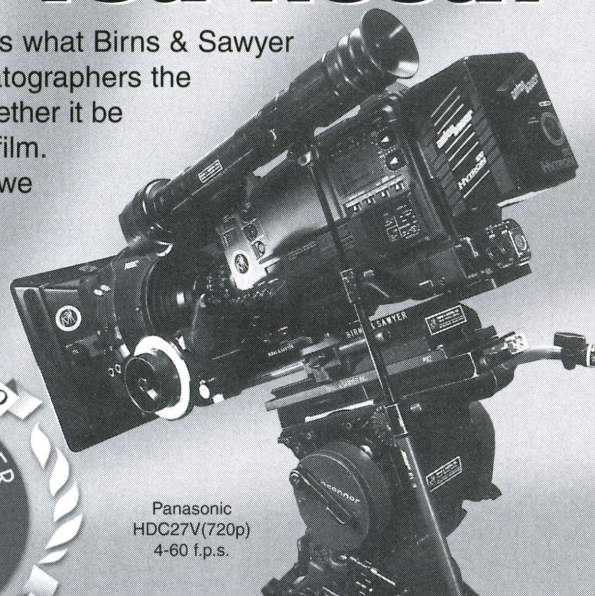
help each other. The episode is called 'Why We Fight,' and it's the reason I signed up for *Band of Brothers*." ■

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A Perilous Pursuit



A scandal that shook Paris at the dawn of the French Revolution takes center stage in *The Affair of the Necklace*, an atmospheric drama shot in the Czech Republic and France by Ashley Rowe, BSC.

by Rachael K. Bosley

Unit photography by Murray Close

Most history books recall Jeanne de la Motte-Valois as a skilled con artist who made the right connections at the right time in the palace at Versailles, and thereby made off with a fortune in jewels. Although she was eventually caught and punished for what became known as “The Diamond Necklace Affair,” the real damage had by then been done. The scandal, which occurred on the eve of the French Revolution, not only



Jeanne de la Motte-Valois (Hilary Swank, opposite) infiltrates the royal court at Versailles and plots to recover the noble birthright that was taken from her family when she was a child in *The Affair of the Necklace*, which is based on a real incident.

Cinematographer Ashley Rowe, BSC employed a number of filters and relied predominantly on natural light to achieve a moody period look. This page, top: After making the right connections, Jeanne (in a red dress) joins the audience at a performance for Queen Marie Antoinette. Bottom: Jeanne realizes that her scheme will impact many lives in addition to her own.

implicated the already-unpopular Queen Marie Antoinette, but it also exposed a prestigious but debauched Cardinal and a troubled and treacherous royal court.

The new Alcon Entertainment/Warner Bros. film *The Affair of the Necklace* suggests that Jeanne's plot was simply the last in her series of efforts to reclaim her family's estate and royal title, which were taken from her parents when she was a child. Smarting from the impoverished upbringing that followed her parents' fall from grace, the adult Jeanne (Hilary Swank) acquires a title through marriage and gradually infiltrates the court at Versailles, where she begins to form alliances that will help her achieve her goal.

Director Charles Shyer says he sent the film's script to Ashley Rowe, BSC after being struck by the cinematographer's "gorgeous and inventive" work in *The Governess*, a 1998 feature set in the early 19th century. He had also seen clips from some of Rowe's other projects,

which include *A Room for Romeo Brass*, *B. Monkey* (see AC Aug. '97) and *TwentyFourSeven* (AC April '98), in addition to several period dramas. "I had to be very prudent in my choice of cinematographer, because I was going into a different arena on this project," notes Shyer, whose directorial efforts include the *Father of the Bride* films, *Protocol*,



Baby Boom and *Irreconcilable Differences*. "Most of the movies I've made have been set in living rooms. *The Affair of the Necklace* has a huge canvas, and I wanted to tell the story visually as much as verbally."

The diversity of the film's settings and the cinematic possibilities inherent in a period tale of deception and intrigue proved to be an irresistible combination for Rowe. "I knew the film would be a fantastic opportunity for a cinematographer, because in addition to being a heartfelt story it's a great visual journey," he explains. "It goes from the grim poverty Jeanne survives as a child to the wealthy and glamorous interiors of Versailles, from very unhappy times to very happy ones."

Accustomed to very short preproduction schedules, Rowe was thrilled to discover that Shyer habitually brings cinematographers onto his projects as early as possible — in this case nine weeks before the shoot began. "That's a lesson I learned while making my first movies with

A Perilous Pursuit



Rowe participated in location scouts and recommended large interiors in order to achieve the framing and camera movement he had in mind. The film's most bizarre location was a Gothic church outside of Prague known as the "Bone Church" (bottom photo), which is full of elaborate sculptures crafted entirely of human bones. (Note the calcified chandelier.)



[ASC members] Billy Fraker and John Lindley," Shyer says. After Shyer met with Rowe, production designer Alex McDowell and other key creative personnel at Versailles, Shyer and Rowe traveled to Los Angeles and spent several days working with storyboard artists and fine-tuning their ideas. "We like a lot of the same things, so we clicked very quickly," Rowe recalls. Among the visual references they discussed were paintings by Jean Siméon Chardin, Jean Honoré Fragonard and Honoré Daumier, photographs by Deborah Turbeville, and the films *Danton*,

Barry Lyndon and *Woman of the Year*.

Their discussions continued while the pair scouted locations in the Czech Republic and France. Production was based at Barrandov Studios in Prague, and most of the film was shot at country estates outside of the city. "We found huge, magnificent homes that were completely empty because their owners had been kicked out during the Velvet Revolution," Rowe says. "That's where we filmed most of our Paris interiors." The cameraman notes that his influence on the choice

of locations was key to achieving the visual strategy he and Shyer had in mind: "The camerawork in classic period movies tends to be incredibly static, which we wanted to avoid. We chose fairly large interiors partly so that we'd have room to pull the camera back from the actors and keep it moving. We wanted to try to move the camera in interesting ways, or at least adapt camera moves to the actors' moves. Working with large interiors also meant that we could use wide-angle lenses to showcase the grandness of the location, or use longer lenses to isolate an actor and de-focus the background to make the actor pop out from the screen."

Rowe suggested to Shyer that they shoot *The Affair of the Necklace* in the Super 35 2.35:1 format. "At one time we thought of framing it in the standard 1.85:1, but I felt that with our subject matter and locations, the story really needed to be widescreen," the cinematographer says. "Charles talked about going anamorphic, but I knew I would need very fast lenses because I'd be relying so much on natural light, especially firelight and candlelight. Anamorphic lenses tend to be quite slow, whereas spherical lenses are very fast and require less of a stop."

Arri Media in London supplied the production with two Arri 535Bs (the show's A and B cameras), an Arri 435 (for visual-effects work), a full complement of Ultra Zeiss Primes and an Angenieux 10:1 zoom, as well as some macro and Swing-and-Tilt lenses for a few shots. "I've always used Arri Media, so I was keen to stay with them even though we were encouraged to rent equipment from Germany," says Rowe. "I know them well, which means we could call in a few favors — they actually threw in a few extra bits and pieces." The production's lighting equipment was supplied by AFM in London and Prague.

Because so many Czech film crews were already at work on other

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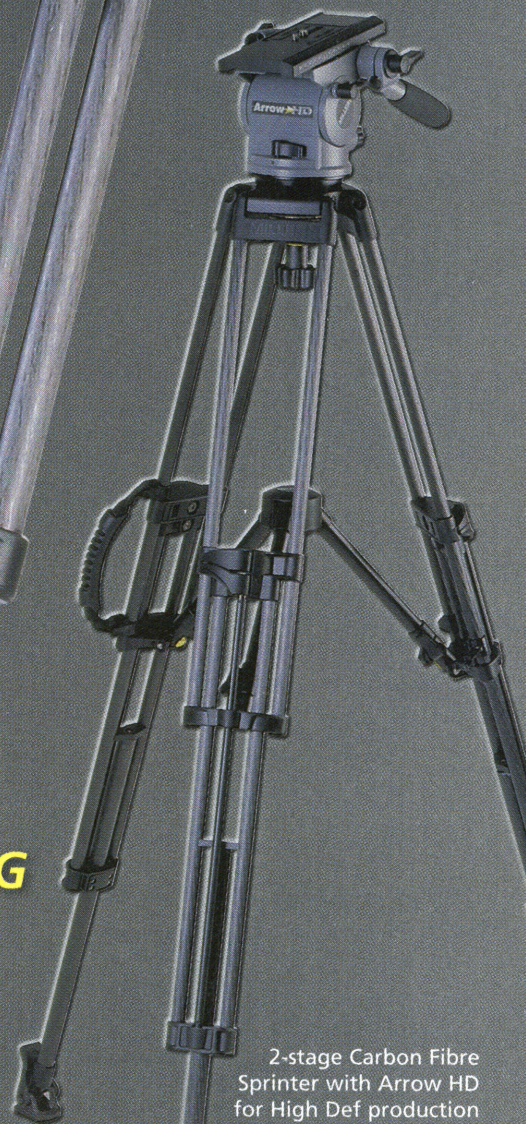
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Jeanne appears before the court to defend her actions. The scandal became known as "The Diamond Necklace Affair" and is believed to have helped spark the French Revolution.

features being shot in and around Prague, Rowe was able to bring his regular crew with him: focus puller Ian Clark, grip John Robinson, clapper/loaders John Evans and Peter Byrne, gaffer Andy Long, best boy Darren Harvey and rigging gaffer Tony Devlin. (Rowe does his own operating.) Gaffer Long supervised a crew of Czech electricians, and a Czech second unit led by director of photography Milan Chadima accompanied the first unit throughout production. "They all worked very, very hard and did a terrific job," Rowe notes. "Because our locations were so far outside of Prague, we were working 15- to 16-hour days, usually six days a week. They coped incredibly well."

Rowe had never worked in the Czech Republic before, and he acknowledges that he "was initially worried. You hear horror stories, of course, but so many movies are being made there now that the crews are very experienced. They're very, very professional and hard workers. There was a language problem at times, but I knew we wouldn't have too many problems as long as I had an English gaffer. Because I operate the camera, I need to be able to communicate

with my gaffer easily and quickly."

The cinematographer spent a few days shooting and processing tests at Barrandov Studios, whose lab would be processing film dailies for the production. "I've always had my films processed at Technicolor in London, but it would've taken too long to get the rushes back to Prague if we'd done that," he says. "I actually sent a few test rolls to Technicolor and a few to Barrandov to compare the two, and after seeing the results I was confident about Barrandov's work."

Rowe was particularly keen to have access to film dailies because an extensive use of filtration was integral to his strategy for *The Affair of the Necklace*. "Charles wanted this film to have a contemporary look, but I wanted to keep the lighting very atmospheric and natural," he says. "Obviously, there are no electrical lights in the frame at all because of the period; the only visible sources are natural light, firelight and candlelight. While I wanted that natural feel, I knew it could be fairly dull if I went for that the whole time, so I used a combination of film stocks and filters to introduce color to enhance seasons and moods."

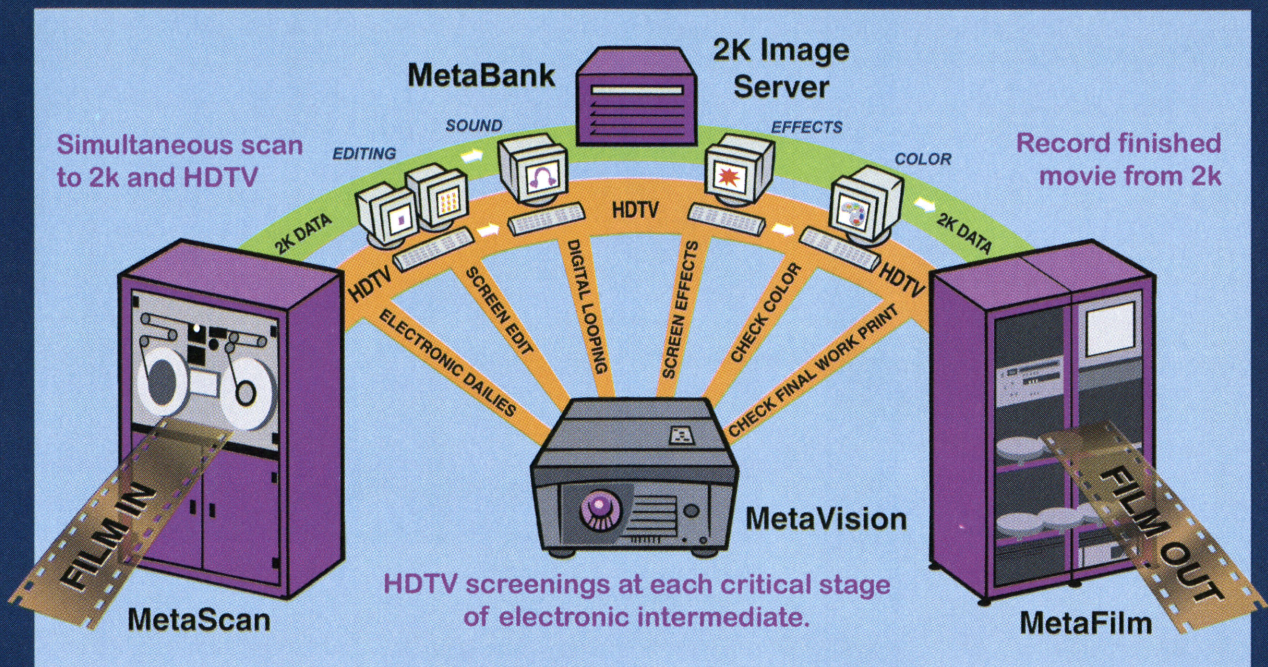
Rowe used Kodak EXR 5245 for most day exterior scenes; he paired it with strong coral filters for the warm, summery scenes featuring Jeanne as a child, and with a Schneider Gold II filter for the main part of the film. The latter filter "gave the exteriors a rich period feel," he notes. "It wasn't really sepia, and it wasn't really coral, but it fell somewhere between the two. It knocked back the colors and made the whites a bit warmer."

To counteract the intense green of grass and trees at some locations, Rowe used a 20B filter, which he discovered while shooting other period projects. "Exteriors with a lot of green tend to be too luminous on film, and they don't have any kind of mood. The 20B adds a bit of magenta to the shot, and when that is graded out of the actors' faces it knocks the vibrant feel out of the green and gives it a darkness that's quite interesting."

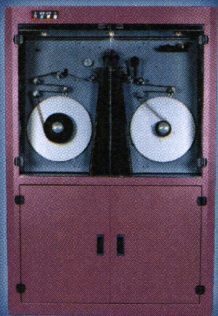
Rowe gave winter exteriors a cold feel by using Kodak EXR 5248 in combination with $\frac{1}{8}$ coral on the lens. "The main challenge in shooting the wintertime scenes was trying to block out the sun," he says, referring to the production's summertime shoot. "We tried to film those scenes early in the morning or late in the day, and we occasionally tied four 40-by-40-foot white silks up in the trees to block the sun."

The filmmakers were eager to give lead actress Swank, who had just won an Oscar for *Boys Don't Cry*, a classic "leading lady" look, and Rowe employed two new filters to achieve the effect. "Hilary is an incredibly beautiful actress and very easy to light," he says, "but everyone was keen for her to look especially glamorous. Charles wanted to use a diffusing filter on the camera, but I don't like the way that lowers the contrast and makes blacks go milky. I tested the new Schneider Classic Soft filters and found that they gave me the look I was after. They add a little bit of diffusion without affecting the

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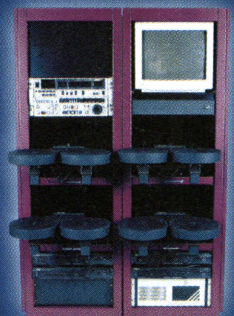
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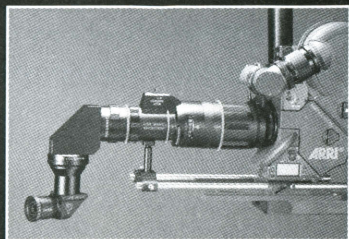


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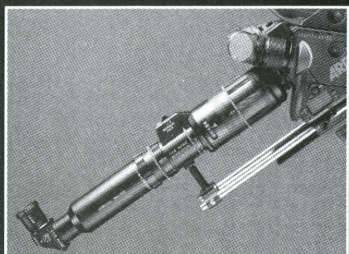
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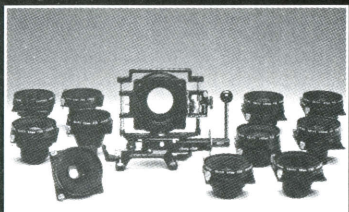
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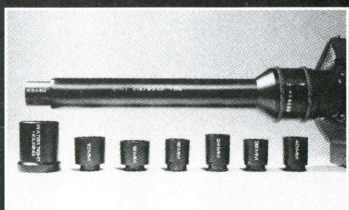
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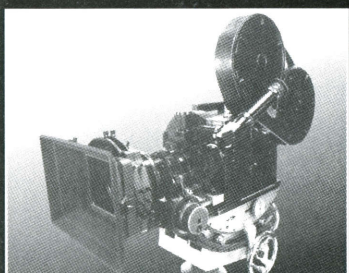


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A Perilous Pursuit



Rowe chats with lead actress Swank. "Hilary is an incredibly beautiful actress and very easy to light," he observes.

contrast in any way. The effect is quite subtle and looks fairly old-fashioned on a face. The filter added a bit of sheen to Hilary's shots without making them stand out from the rest of the film."

For Swank's close-ups, Rowe used a set of Neutral Density Oval Spots that had been made specifically for the production by Panchro in London. "The filter existed in a very basic form, but we asked Panchro to make us a bigger range," he says. "It's made of the same material as a grad filter and has varying degrees of clear space in the middle. It slightly darkened the scene around Hilary very subtly, while keeping the exposure on her face perfect. It was a great way to make her stand out from the background."

The cinematographer's use of filters was frequently augmented by an improvisation of his own: he pressed slivers of plastic cling wrap to the corners of the filter to soften the edges of the frame. "I wanted to break the very sharp image down a bit," he explains. "If you look at the old black-and-white photos that were taken with lenses that had no coatings, you'll see a little bit of distortion on the edge of the frame. I thought it would be great to try to achieve that look in a period film,

and I began trying different things years ago. I used to use Vaseline, but it tends to smear and distort the image. It occurred to me that cling wrap is very light, and if used carefully it would let light through and not distort the image too much. With fine slivers of cling wrap, you can soften certain small areas of the image, and you can even add multiple layers to break it down further.

"Of course," he adds with a chuckle, "people tend to be terrified when they come up to the camera and see all this stuff on the lens!"

Although Rowe had not color-timed the film as AC went to press, the availability of film dailies in Prague enabled him to closely monitor the effects of his filtration strategy. "When your rushes are transferred to tape you're at the mercy of a telecine grader, and if you add a filter he will often grade that out," he notes. "With film, I could give the timer a gray scale and color chart at the front of each roll, and ask him to grade to that. That way, any changes I made with filters throughout that roll showed up on the rushes."

Rowe used Kodak Vision 500T 5279 for the film's night scenes and interiors, many of which were candlelit. "This tungsten-balanced

stock copes with the low light level beautifully, but it's a real problem to get a candle's flame to look warm on it — it often looks like a white flame," he notes. "You can't simply add a filter to make it look warm, because you end up with double reflections of the flame down the lens. Of course, you can add filters to your lamps to create warm light on an actor's face, but the challenge is to lend warmth to the candlelight."

Over the years, Rowe has developed a method for "cheating the grading" in order to achieve that: "When I put the gray scale or color chart on the front of the roll, I'll actually light it with a quarter or half blue gel on the lamp. When I ask the lab to grade to the color chart, they'll automatically see that it looks blue, and they'll grade out the blue. By grading out blue, they grade in warmth, so we get rushes back that have warm, rich candlelight."

"The problem with this method," he continues, "is that if they warm up the grading to counteract the blue, they're adding warmth to the actors' faces as well. So I add blue gels with different degrees of strength to the lights that are lighting the actors. I can thereby achieve a neutral look, or add different degrees of warmth by adding blue."

One particularly memorable nighttime interior was lit almost entirely by firelight and features the production's most bizarre setting: the Kostnice Sedlec, or "Bone Church," located in a medieval town outside of Prague. The Gothic church dates back to the time of the Plague and is full of sculptures made entirely of human bones, including an elaborate chandelier. The location doubled for the catacombs beneath the chateau of the decadent Cardinal Rohan (Jonathan Pryce), who hosts orgies and parties there.

"It was a horrendous place, but incredibly beautiful," Rowe observes. "If we made one false move, we would have dislodged

10,000 skulls. It was a very difficult job for [rigging gaffer] Tony Devlin! There were a few small windows that we tented, and we set up big silver urns that burned pure alcohol, which didn't create smoke — the owners were worried that smoke might turn the bones black. We set up an array of big, chunky candles of different heights on the dinner table, but they gave off a lot of smoke, so we literally

lit them just before the shot and only lit them all for wide-angle shots. We placed just a couple of candles in the foreground for close-ups, and we actually lit the close-ups by bringing over one of the big urns. I occasionally used gelled Chimera globes or Chinese lanterns to supplement the candle effect."

Lighting day interiors, many of which were filmed in historic land-

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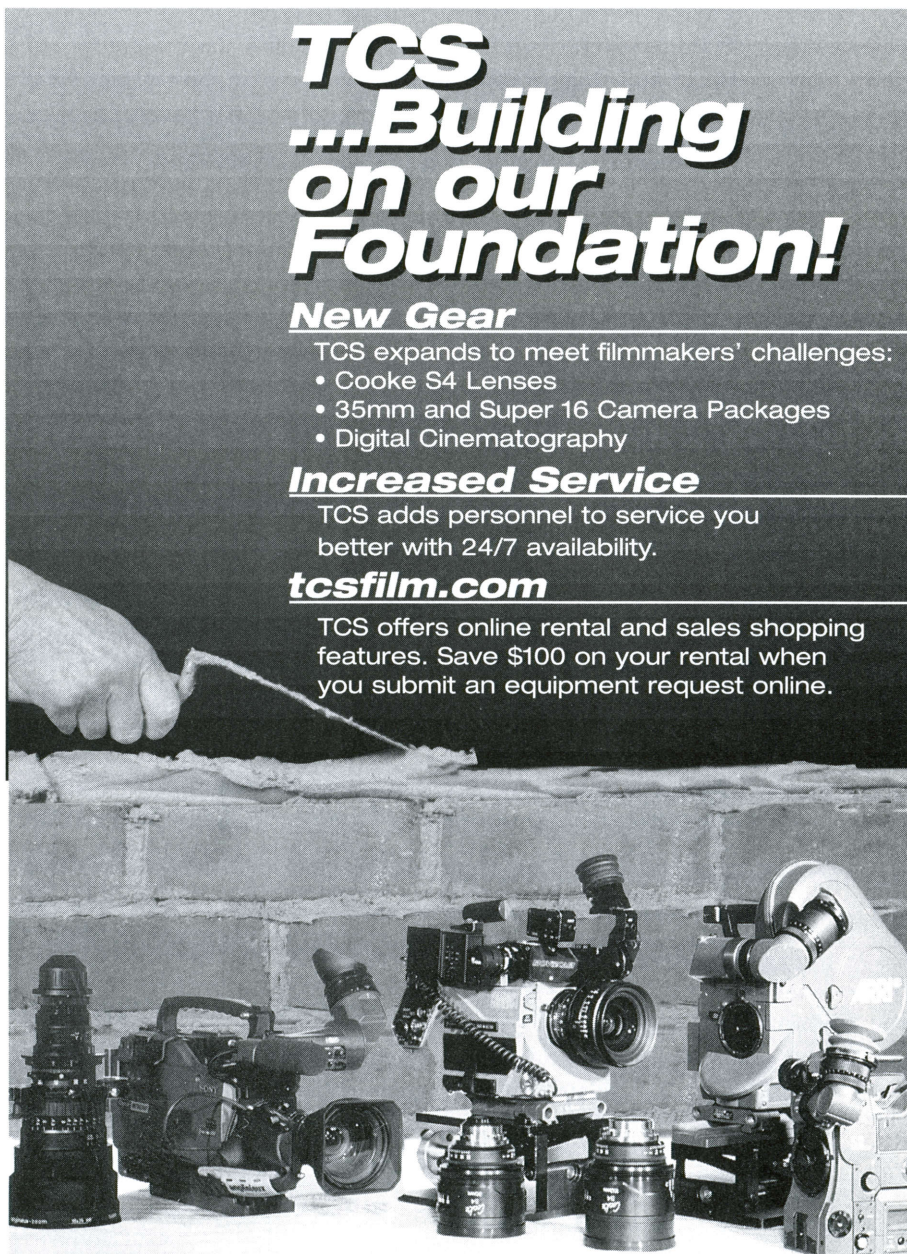
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A Perilous Pursuit

Rowe prepares to capture another perspective in the courtroom scene. "I do my own operating because I feel a lot closer to what's going on," he says. "On the occasions when I've just lit, I've felt really detached from the whole process."



marks, required extensive pre-rigging. "We couldn't fix lights to the ceiling or walls, so we ended up building huge scaffold rigs outside the windows and using 18K HMIs to light through the windows," Rowe says. "I would sometimes add a little

fill inside if I needed it. Most of the interiors had windows 12 to 16 feet high, literally from the floor to the ceiling, so a lot of our money was spent on scaffolding. For some odd reason, the bigger rooms in Paris are built on the ground floor, but in the

Czech Republic they're generally one story up."

The production purchased a helium lighting balloon as an interior-lighting option, but Rowe says he only used it for the "cavernous interiors that had no windows at all." He adds, "We had it with us at all times, but it gives an even, soft wash of light that tends to go everywhere. The only way to get some control was to drape the back of the lamp. It was quite tricky to use, but quite handy for those scenes."

One particularly magnificent day interior setting is the famous Hall of Mirrors at Versailles, which features about 30 18' windows on one side. "We had two big scenes there that featured hundreds of extras, and we were told we couldn't place any lights outside because the management didn't want ugly scaffolding on the palace for two or three days," Rowe recalls. "I was only

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allowed to use up to six kilowatts of light inside, which is nothing, so I was praying for a sunny day!

"But when the day arrived, it was overcast. I found, however, that the soft daylight created a cool look on the tungsten film, which was a nice contrast to the typical sunlight look [of other interior scenes]. I brought in a small tungsten unit to light the main actors in the foreground, and just let the background drop off. With the Ultra Zeiss lenses and the fast stock, it looks beautiful in a soft way."

One object that was always photographed indoors posed a special challenge to the cinematographer: the spectacular necklace of the film's title. "The necklace was designed by a London jeweler, who used cubic zirconia with the maximum number of cuts so that we'd get the maximum amount of glitter," Rowe says. "They also put foil back-

ing on the stones to give us maximum reflection.

"We all thought we'd have trouble making the necklace sparkle. I first tried using a star filter to photograph it, but the sparkles went the whole width of the screen, or looked really, really cheap. But a very simple method worked well: for all shots of Hilary wearing the necklace, I gaffer-taped several tiny spotlights to the lens itself and aimed them at different parts of the necklace. The light level was so low that to the eye, it didn't illuminate the subject; but because it was on the axis of the lens, it made the diamonds really sparkle. They really kicked back."

To add a final touch of luster to *The Affair of the Necklace*, Rowe requested that the release prints be done on Kodak Vision Premier stock. "The last Super 35 period film I did was printed on it, and I was thrilled with the results. Because Super 35

has to be optically squeezed, the image quality decreases very slightly, and I've found that the release prints are never as good as the answer print. But the Vision Premier stock seems to kick [what was lost] back in; it makes the blacks blacker and increases the color saturation slightly. Shadows and darkness become sharper and cleaner, and the result is very atmospheric.

"*The Affair of the Necklace* was really the most creative process I've ever had a chance to work through on a film," Rowe concludes. "Charles trusted me so much when it came down to planning shots, and that freed him up to spend more time with the actors. I don't think I've ever been quite so involved in the look of a film." ■



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Tracking the Giant Panda

The scenic Imax film *China: The Panda Adventure* combines the substance of a documentary with the storytelling style of a feature film.

by Ray Zone

Unit photography by
Deana Newcomb

Since its inception in 1970, the 15-perf/70mm large format (LF) has primarily been used on documentary films. Producers Antoine Compin and Charis Horton have attempted to create a new narrative model for the format with Imax 3-D films such as *Wings of Courage* (1995), *T-Rex: Back to the Cretaceous* (1998) and *Cirque du Soleil: Journey of Man* (2000; see AC Sept. '00). "We try to move a vision combining narrative and documentary along," says Compin.

The pair's new LF film, *China: The Panda Adventure*, an Imax 2-D release, is an artistic breakthrough in the medium, seamlessly incorporating documentary material in a sleek narrative vehicle. Based on the 1938 autobiography *The Lady and the*



Panda by Ruth McCombs Harkness, the film was scripted by Jeanne Rosenberg, whose writing credits include *The Black Stallion* and *The Journey of Natty Gann*. The plot relates the true adventures of Harkness, who traveled to Shanghai, China, in 1936 to collect the ashes of her late husband, the adventurer William "Bill" Harkness, who had been on a quest to study the giant panda before falling deathly ill with fever.

Maria Bello stars as Ruth, who takes up her late husband's expedition and journeys deep into the mysterious forests of China in search of the elusive panda. Before succumbing to fever, Bill had made it to the Min Valley near China's border with Tibet, accompanied by Quentin Young (Xia Yu), a young Chinese guide. In a journal left to Ruth, Bill had written about glimpsing a giant panda, one of the only known animals not held anywhere in captivity by 1936, and which Harkness believed was not the horrifically ferocious creature that game hunters said it was.

The film also features Xander Berkeley as Dakar "Dak" Johnston, a former partner of Bill's and an English sportsman determined to hunt down a giant panda. Johnston informs Ruth that it is impossible for her to succeed in her "romantic" quest to find a panda. Refusing to share Bill's journal and map book with Johnston, Ruth decides to take up the challenge by herself and enlists Quentin's help in preparing a new expedition.

"Ruth's journey provided us with fascinating and rich material for this Imax production," says Andrew Gellis, the film's executive producer. "The adventure takes us to an exotic locale with a strong protagonist searching for one of the world's most revered creatures."

To realize the necessary blend of narrative and documentary storytelling, the producers hired director

Robert Young, an award-winning feature and documentary filmmaker. "One of the things that attracted me to this project is the fact that the Imax format is so experiential," Young explains. "Ruth's journey has to be experienced in the large format. It's remarkable to see her arrival in Shanghai, with the boat and the Chinese junks set against the mountains. You could never capture it all in a conventional film."

The photography of *China: The Panda Adventure* was entrusted to Reed Smoot, ASC, whose extensive experience with both LF and narrative 35mm filmmaking made him the ideal choice. A recent recipient of the Kodak Vision Award, presented in recognition of his 20-year contribution to LF filmmaking, Smoot is very aware of the strengths and limi-

tations of the Imax medium as a dramatic canvas. "There is an ongoing debate about what constitutes a close-up in large format," notes Smoot. "In a certain sense, due to the size of the screen, everything is close-up. The real issue becomes the positioning of subject in the frame to give the proper scale for a character within the dramatic context of the scene. The blocking of actors becomes a bit more of a blend of theatrical and film staging, which many actors like because it gives them more freedom of movement."

Young and Smoot worked together to help the performers convey emotion and drive the narrative. "There's so much visual information onscreen for the audience to take in that you can't make quick editing cuts," says Young. "You're



The Imax film *China: The Panda Adventure* retraces the steps of Ruth McCombs Harkness, who traveled to Shanghai in 1936 and ventured deep into the forests to track the elusive panda. This page, bottom: Ruth (Maria Bello) introduces a panda cub to some local children.

Tracking the Giant Panda



The 2-D Imax film was shot by Reed Smoot, ASC, a veteran of several large-format films. The Great Wall of China and the landscape of Jiuzhaigou Park are among the film's magnificent vistas.

always getting a sense of the person in a given situation, so the environment around the character has relevance. Because of this, the performances need to be strong to retain the viewer's attention within the larger dynamic of the frame."

"The very thing that works so well in LF is the ability to deliver the most amount of visual information," says Smoot. "Yet, when dealing with this story's more intimate moments, we were frequently eliminating elements in the frame so they

wouldn't be competitive. We tried to do this through a combination of composition, art direction and lighting, simplifying the imagery and shrinking the awareness of the frameline to defer attention to the characters at a particular moment. For example, we shot one of the film's opening sequences at night, which allowed us to selectively reduce the size of the frame by allowing certain areas to go dark."

This particular sequence depicts Ruth's arrival in Shanghai via

an ocean liner, and her discovery of the city while riding along Nanking Road in a rickshaw. The scenes were shot with Kodak Vision 500T 5279 stock on a large backlot set that, in Smoot's words, "went on forever." The set was four city blocks long and required pre-lighting, pre-rigging, extensive dressing with props and 400 extras.

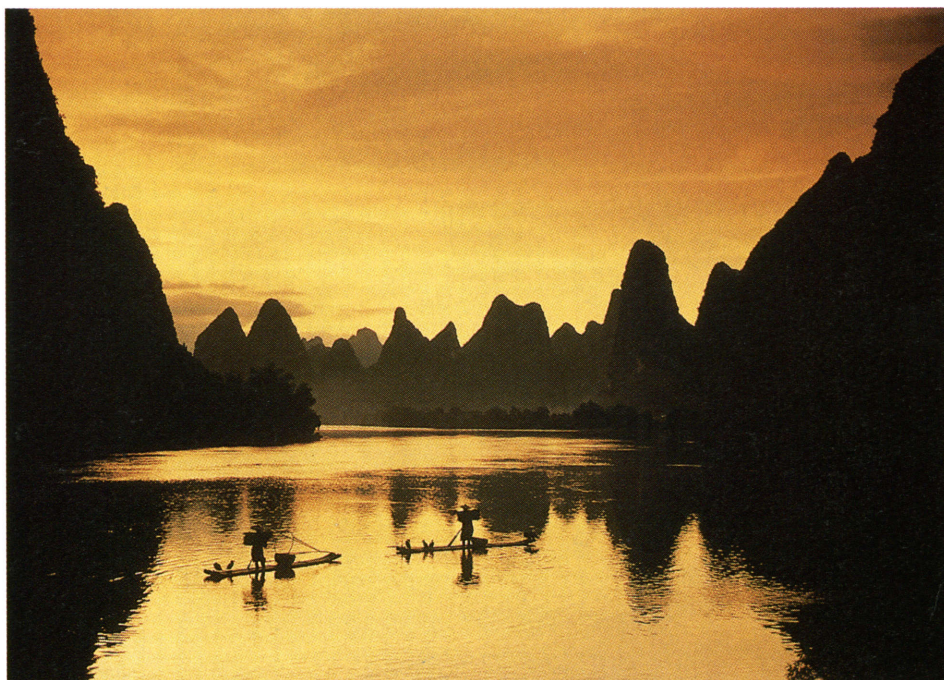
"They don't run power into the corners of the set in China," details gaffer Dennis Peterson. "So I had to run stingers and run a whip with extension cords to power the individual 1Ks and 2Ks that I buried everywhere in the set and around corners. I also used Maxi-Brutes and Dino lights in the windows."

A crew of 120, more than half of whom were Chinese, had to hand-haul the Dino lights and run them off of stands that were positioned on the rooftops of the set. "I wanted three 80-foot Condors," recalls key grip Bob Adams, "but instead I got a firetruck with a ladder!" Griffolyns measuring 12'x12' were used for bounce light, and frames of light gridcloth were employed for diffusion.

"Dennis drew out a very detailed map of lamp placements that we had determined," says Smoot. "It was pretty big, considering the budget, but we had the advantage of a pre-light with a very large, local crew. We had an amazing number of instruments working as source lights in all of the buildings, flooding windows and crisscrossing the street. We had just one night to shoot the entire sequence, which forced us to be decisive and move at a much quicker pace than is conventional with LF work."

Adds Compin, "We provided Reed with a fairly large electrical package so he would have the means to do what he needed to do, and it was money well spent."

For the big shot of Shanghai at night, the camera was mounted on an Enlouva II crane, which had the



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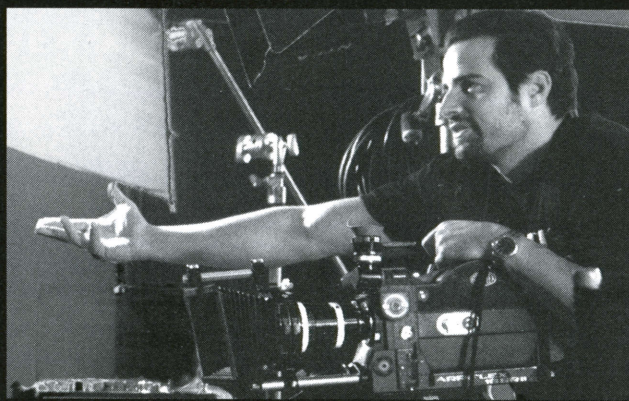
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Tracking the Giant Panda



Above: Ruth treks into the wild to find the critters that her late husband had hoped to study. The Imax crew frequently used green paint and bamboo to camouflage their equipment in day exteriors. Right: The set for a Shanghai street at night was four city blocks long and required extensive pre-rigging and pre-lighting, as well as 400 extras.



“beauty [of being] especially portable,” according to Adams. The Imax camera was mounted on a Gyro Pro stabilized head. Manufactured by Peace River Studios, the unit has six gyros (two for each of three axis movements: pan, tilt and roll). The Gyro Pro, mounted with the camera on an electric cart rigged with speedrail, proved especially useful for scenes depicting Ruth riding in a rickshaw as she first enters Shanghai.

Smoot explains, “We used the Gyro Pro very extensively during the

Shanghai street scene to place the camera in proximity to Maria Bello. We travel with her character as she becomes immersed in the culture, studying her reactions and also presenting her point of view. The Gyro Pro allowed us to negotiate some very rough streets with curves, cobblestones and railroad tracks, and still get very acceptable images. Bobby Adams was able to mount the head and adapt it for four or five different configurations. LF filmmaking is very unforgiving in terms

of camera jerkiness, and the Gyro Pro helped us out a lot.”

A big consideration for LF storytelling is the fact that the “sweet spot” of the frame is one-third up and halfway over. Unlike conventional 35mm with its horizontal aspect ratio, LF action is usually centered near the bottom center of the screen. The immersive nature of the image also has a great impact on composition, POV and staging. “I want the audience to feel as if they’re right in the middle of the action, with a world in each direction,” says Young. “I try to use space as three-dimensionally as I can, so the viewer is in the middle of the action and the cutting will allow you to look in the opposite direction. It’s as though you’re seeing something from the inside rather than just watching.”

This effect works very well for the Shanghai street scenes. Nighttime filming required camera apertures of f4 to f5.6, and great care was taken with the lighting of actress Bello. Smoot notes that “one of the things we wanted to do with Ruth was to show her progression from the time she gets off the boat, when she’s a very refined and Westernized lady of the mid-1930s, to the end of the film, when she’s adapted to her environment. We wanted to create an arc of progression that would show her emotional and physical changes. We began by giving her more of the Thirties glamour lighting and gradually progressed into a much earthier approach to her character.

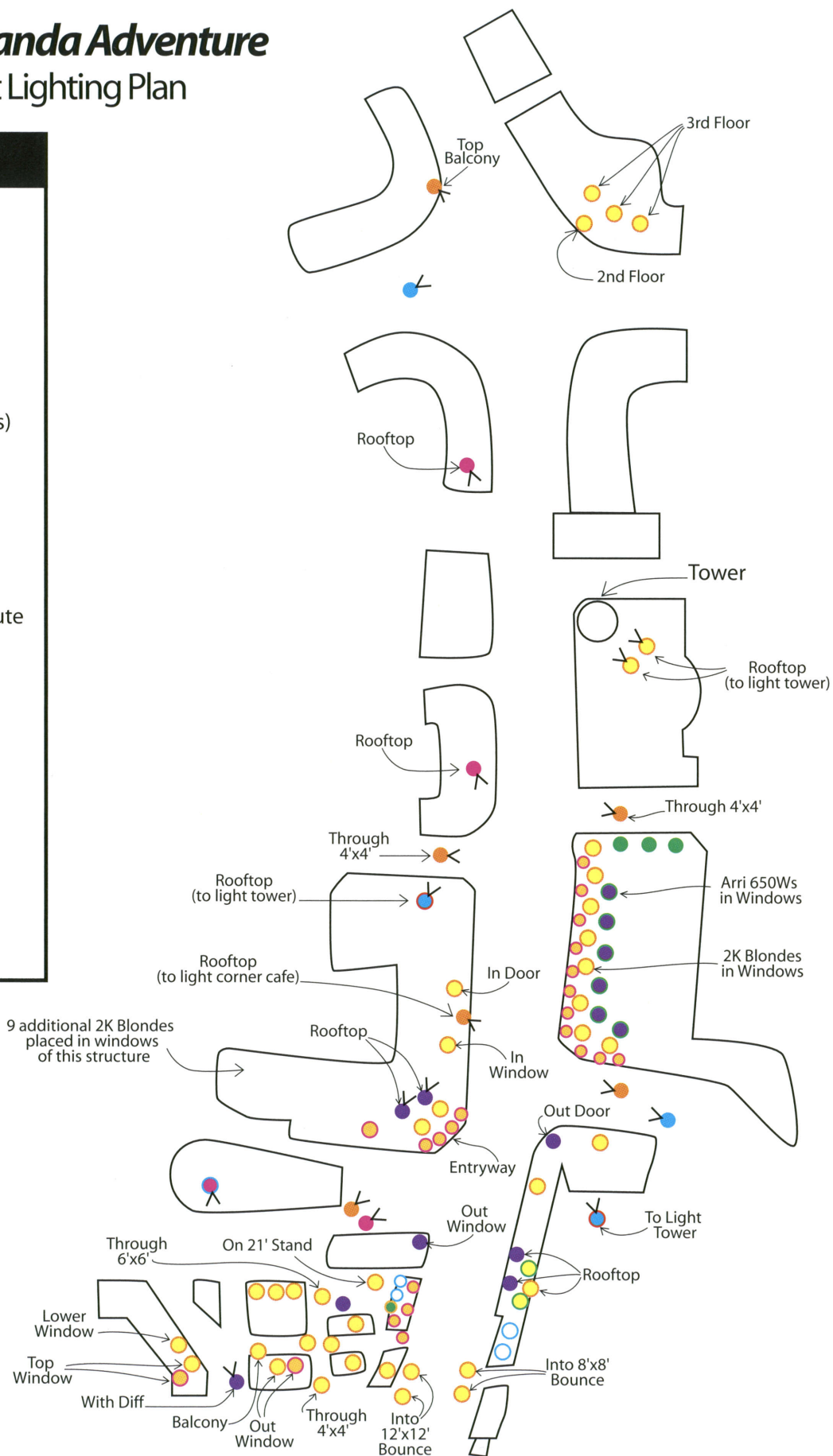
“Along with lighting,” he continues, “we used Schneider Classic Soft filters, which allowed us to soften her features incrementally without betraying what we were doing. This is always a big concern in LF because you’re constantly trying to deliver the highest-resolution image without losing optical quality. The Classic Softs allowed us to do that very effectively.”

The Imax camera used to shoot *China: The Panda Adventure*

China: The Panda Adventure

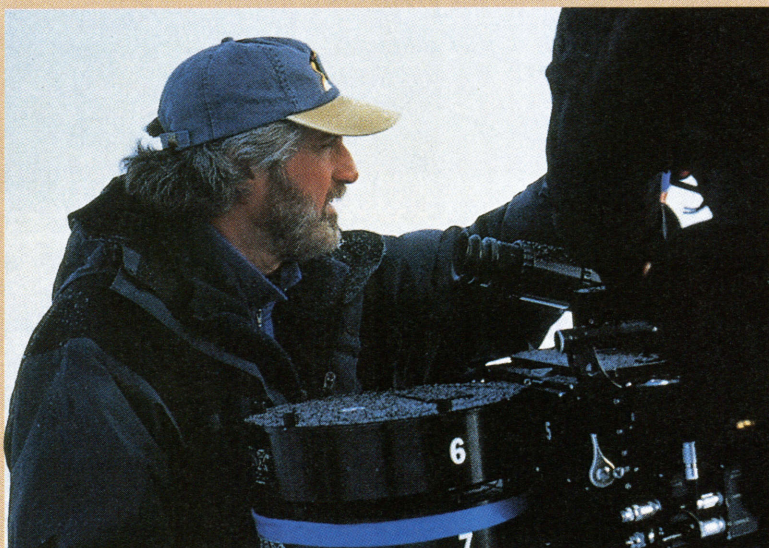
Shanghai Street Lighting Plan

KEY	
	1K Fresnel
	2K Blonde
	4K Par HMI
	4' Kino Optima (Tungsten Tubes)
	5K Fresnel
	5K on Dimmers (Vegas Lights)
	9-Light Maxi-Brute
	10K Fresnel
	12K Par
	24K Dino
	Arri 650W
	650W Fresnel
	800W Redhead



A MAN ON THE MOVE

Veteran large-format director of photography Reed Smoot, ASC at the helm.



The Large Format Cinema Association (LFCA) recently presented Reed Smoot, ASC with the Kodak Vision Award for expanding the realm of large-format (LF) filmmaking with his extensive work in the field. "Reed has continually distinguished himself in the LF filmmaking area," said Beverly Pasterczyk, a representative of Eastman Kodak and a member of LFCA's Board of Directors. "The excellence of his artistic vision as a cinematographer is evident in his extensive filmography."

For the past 20 years, Smoot has contributed to LF films such as *Grand Canyon: The Hidden Secrets* (1983), *To Be An Astronaut* (1991), *Yellowstone* (1992), and the Academy Award-nominated *Special Effects* (1993). He directed, shot and co-produced *The Great American West* (1994), and served as cinematographer on *Mysteries of Egypt* (1997), *Cirque du Soleil: Journey of Man* (2000), and *China: The Panda Adventure*. He is completing work on Jane Goodall's *Wild Chimpanzee* and *The Human Body*, the latter being the first LF film produced for the BBC.

One of Smoot's recent endeavors,

Shackleton's Antarctic Adventure, tells the extraordinary true story of Sir Ernest Shackleton's ill-fated 1914-1916 expedition and has been the top-grossing LF film on *Variety's* box-office charts. Smoot made two grueling expeditions to the Antarctic to film the project. "We knew we were going to have to push the limits in terms of putting the camera where the story was," Smoot says. "We fabricated an inflatable boat that had a platform with speedrail fittings. Most of the time we shot right off the front of the boat." LF cameraman David Douglas shot the traversing of the island by three modern-day climbers.

The Human Body examines the daily biological processes that go on without our control — and often without our notice — by following what happens to one family over the course of a single day. "Over the course of the year we've been shooting this film, we've used every conceivable image-acquisition technique I can think of," Smoot notes. "The film will give us a glimpse into a world we've never seen before."

— Ray Zone

was the MSM 9801, built by and named after inventor Martin Satterlee Mueller, who has created a number of 15/65 cameras for Imax. Built in 1993, the MSM 9801 camera won a 1996 Scientific and Technical Award from the Academy of Motion Picture Arts and Sciences. Weighing 55 pounds, it can take either 500' or 1,000' magazines of 65mm film, providing up to three minutes of running time at 24 fps with the larger magazine. With variable frame rates running from time-lapse to 36 fps, the camera has a 180-degree shutter. A few are currently being retrofitted with beryllium to accommodate 48 fps.

The 9801 has a flexible lens system that takes standard Hasselblad lenses originally designed for still photography (ranging from 30mm to 350mm), as well as an 800mm Pentax with a telephoto extension of up to 1200mm. Mueller retrofitted the Hasselblad lenses to adapt them to the Imax camera. "Hasselblad uses the same glass as the Imax cameras have historically," says Mueller. "We remounted and completely rebarrelled all of them with new focus mechanisms and iris drives so they would be more robust. We completely rebuilt the lens housing, took the glass out of the Hasselblad lenses and built entirely new parts for [the housing]."

One very useful lens, offering a focal length that approximates human vision, is Hasselblad's new f2.8 50mm "floating element" lens. This was the lens used most often over the nine weeks of filming in China. Mueller notes that "Reed was the one who asked us to mount up the new 50mm lens, and it turned out to be a really lovely lens." A general rule of thumb in LF is to use shorter lenses and to stop down for the greatest depth of field to produce the sharpest image overall on the giant screen.

Smoot was the first cinematographer to shoot with the 9801 camera

(on the 1992 film *Yellowstone*), and he has since used it extensively on other LF motion pictures. In moving the 65mm film through the gate, however, the 9801 makes a considerable amount of noise. This camera noise was a bit of a surprise to director Young and the performers when they first began filming an intimate interior scene in the House of the Dead, where Ruth recovers an urn containing the ashes of her late husband. "When we turned on the camera the first day," remembers Young, "the actors could literally not hear a word. We were doing a really intimate kind of scene *sotto voce*, and trying to accomplish that against the sound of a cement mixer was a challenge."

"When the 9801 camera is rolling," says first camera assistant Scott Hoffman, "it emits about 60 to 65 decibels of noise at six to eight feet. A regular 35mm camera puts out about 19 to 21 decibels." For any scene with sync sound, two takes were used. The first take was used as a guide track for sound, and the second was shot for sound without the camera rolling.

"One of the things that Bob had to correct immediately was the actors' level of delivery," notes Smoot. "Since this was only intended to be a guide track for dialogue-replacement later, we couldn't have picture that showed them with raised voices in an intimate scene. This is going to be a bigger issue as more narrative films are made in this format."

Recounts Compin, "The urn scene had quite a bit of dialogue. Maria really saved the day at the ADR session. She was very good, and she improved her performance a great deal." Horton adds, "Essentially, we've always had to do ADR with Imax. We've rarely been able to use a take, even without the camera rolling."

Another dramatic scene in the film takes place at night by firelight in a remote village, where the ancient

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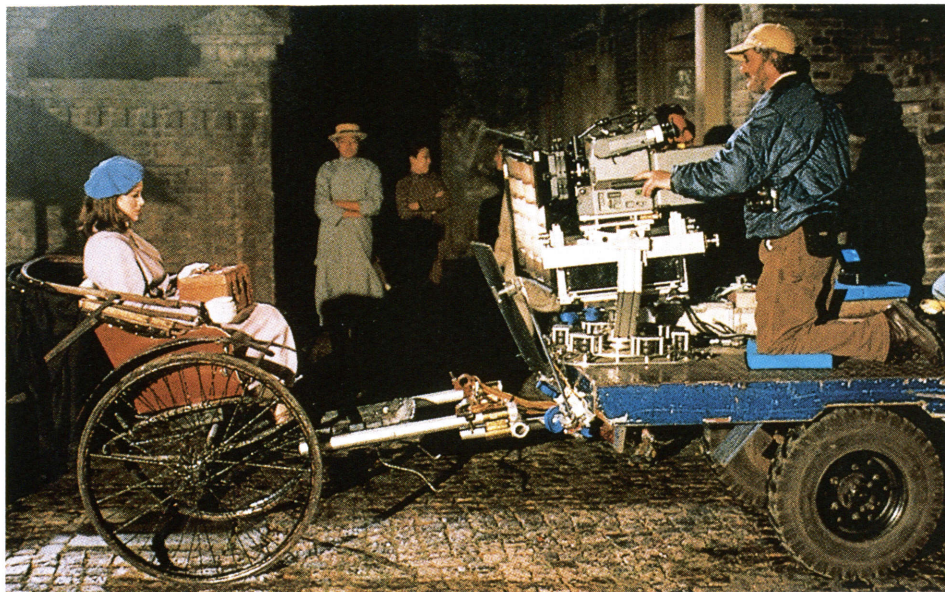
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Tracking the Giant Panda



Smoot captures a close-up of Bello in a rickshaw on the Shanghai street set. The Gyro Pro head on which the camera was mounted "allowed us to negotiate some very rough streets with curves, cobblestones and railroad tracks, and still get very acceptable images," Smoot remarks.

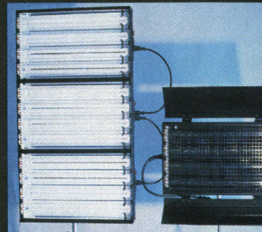
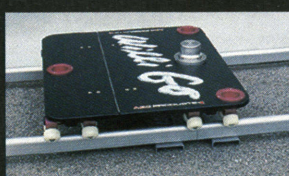
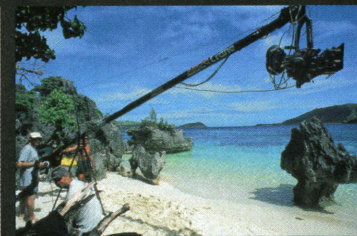
Chinese art of "face/change" with masks is depicted. A bit of real fire was used as practical light, but the crew enhanced the look with a flicker generator brought from the United States. "We took the specialty equip-

ment that we couldn't get in China with us," says Smoot. "The flicker generator was one of those items. It's completely standard in the U.S., but in China, they'll just take some sticks and cloth and sort of shake them in front of the light. It was fun working with the local crews, who shared a lot of the little tricks that they've developed to compensate for not having all the latest toys. For example, they don't use scrims on the lights; instead, they fabricate other devices to throw shadow patterns and cut down the intensity of the light."

For daylight exteriors and filming of the giant pandas, Smoot employed Kodak Vision 250D 5246 stock and relied on available daylight. Bounced natural light was used to provide fill light for scenes of the pandas in the wild. To provide additional camouflage for their equipment, the crew brought a lot of bamboo and green paint into the

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wild. Many scenes capture the beauty of Jiuzhaigou Park's waterfalls, lakes, canyons and rivers.

The pandas recruited for the film were tame, and had been bred and raised in the Wolong Nature Reserve. Because of their continual interaction with breeders and scientists, the presence of the film crews did not disturb them, and the camera noise was not a problem. Before the main unit began shooting, second-unit director of photography Tom Cowan spent two weeks documenting the progress of baby pandas, and managed to catch some interesting behavior on film.

As Ruth is depicted making her 1,500-mile journey up the Yangtze River, racing against Johnston's expedition, the landscape of China is beautifully captured. The Great Wall of China is revealed in an impressive crane shot that conveys its monumentality. "That shot of the

Great Wall looking down over a great distance was all Reed," Young professes. "He has an intuitive grasp of camera movement for the LF medium."

"Reed enjoys moving the camera," Hoffman agrees. "He does it to allow the audience to discover things naturally. The camera reveals the landscape, but at the same time it allows the audience to see it as they would in real life."

After a perilous trip down white-water rapids on the Yangtze, Ruth discovers that all available men from a Tibetan village have been hired by Johnston, who has pushed on ahead of her. She instead recruits the women of the village to join her expedition at double pay. When she finally reaches the Min Valley and her late husband's camp, she realizes that she is very close to the giant pandas he claimed to have found. She is informed that Johnston's

expedition has also set up camp nearby, but she arrives an instant too late to stop Johnston from slaying a mother panda. To her amazement, however, Ruth discovers the panda's frightened and confused cub hiding in bushes nearby. It is this gentle creature that she brings back from the wild.

Young submits that "Ruth's achievement and the story of her quest is made even more extraordinary when you consider the odds that were against her, as well as the impact that her act of bringing a live giant panda to the United States had upon the conservation movement." Compin agrees, noting, "Her journey is a perfect story for an Imax film — it's dramatic and exciting, has elements of action and wildlife, and it also focuses on a key episode in natural conservation." ■

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Digital Cinema, By George



In an exclusive interview, filmmaker George Lucas offers *AC* an explanation of his plans for digital cinema, as well as insights into the production of *Star Wars: Episode II*.

Interview by Benjamin Bergery
Edited by Rachael K. Bosley



Opposite: *Star Wars* creator George Lucas eyes an upcoming shot on the set of *Episode II*, which was shot entirely with Sony HDW-F900 camcorders and Panavision Primo Digital lenses. This page: Anakin Skywalker (Hayden Christensen), now a teenager, contemplates his next move.

American Cinematographer was recently granted an exclusive interview with George Lucas on the set of *Star Wars: Episode II*. Over a period of two days, Lucas spent several hours talking to AC on and off the set at Ealing Studios in London. Producer Rick McCallum, who has worked with Lucas for 12 years, joined in our spirited discussion from time to time.

A writer, director, producer and entrepreneur, Lucas is a complex and paradoxical figure — a billionaire who is also an independent filmmaker. By founding THX, he has contributed greatly to the quality of film projection, which he is presently seeking to replace as quickly as possible with digital systems. He has spent much of his life spearheading new technology, yet he writes his scripts in longhand on legal pads, and says that he is not interested in the details of the technology he promulgates. He has spent 30 years creating digital sound, editing and effects companies that push the technological envelope of cinema in order to make a series of science-fiction movies modeled on

the matinee films of the 1930s.

Although his comments about digital technology have occasionally riled film traditionalists, Lucas maintains that his preference for digital methods is mainly a matter of control and convenience. It becomes quite clear while spending time with him that he still has an unwavering passion for cinema as a storytelling art form.

American Cinematographer:
What led you to shoot *Episode II* on digital video rather than film?

George Lucas: In the end, it doesn't make any difference which medium you're using — it's all storytelling. I dispatched with my nostalgia for film very early on, 20 years ago. Whenever I came into contact with film after that, it seemed a cumbersome medium for me, and it became increasingly frustrating.

I started with special effects, where the challenges are horrific. Digital really opened up that whole field in a way that you couldn't think of doing optically with the photochemical process. I spent a huge

amount of money, effort and research developing Pixar and Industrial Light & Magic in order to get all of the images into the computer so we could start working with them digitally.

At the same time, we developed the EditDroid videodisc-based non-linear editing system so that I could get the actual photochemical celluloid strips out of the editing room.

I came to digital because of quality and ease of work, which is why I pushed Sony and Panavision to build digital cameras and lenses, and why I've been pushing Texas Instruments and the theaters to project digitally.

What roles did Sony and Panavision play in getting a system together for you?

Lucas: They've been great. Rick McCallum and I went to Sony before *Phantom Menace*, and they had a prototype system. We said, 'This is great, but it's absolutely essential to run at 24 fps in the short run in order to get us into the theaters.' We talked them into it and

Digital Cinema, By George



Lucas and producer Rick McCallum take a break with some familiar compatriots, R2-D2 and C-3PO.

got another prototype. We tried to be ready for *Phantom Menace*, but we couldn't find anyone to build lenses for us, and we went everywhere. So we missed our dates for *Phantom*.

Then Panavision said they were interested in making the lenses. So we got them together with Sony and said, 'We want to be able to shoot *Episode II* with this. That gives you about two and a half years. Can you get it done in time?' And they replied, 'Yup, we'll do it.' And they did. They had to invest a huge amount of money and bet that this was going to work, and that it would look good. And I must say I think this is best-looking film I've ever done.

How would you compare shooting 24p to shooting film?

Lucas: I'm not going to argue about whether the blacks are better, or whatever. A lot of my enthusiasm for digital is because the process is so much easier. Also, I have much more control in the shooting and the post-production process in terms of

making the images look the way I want to them to look. It's like a car that looks sleeker, drives better and goes faster.

Rick McCallum: By going digital we save an hour to an hour and a half a day in reloading time. But you have to understand that we shoot a lot of film. We shot 1.2 million feet of film on *Phantom Menace* in 60 days — that's equivalent to 20,000 feet of film per day. We averaged 36 setups a day with our main camera.

Obviously, shooting directly in digital allows you to skip the step of transferring film to digital.

Lucas: Yes. *Phantom Menace* was completely transferred to digital. It is complicated to convert from film into the digital world, and we threw years of suffering and high costs out the window when we decided to shoot directly in digital, but that's more of a technical issue than anything else.

McCallum: There are 2,100 visual-effects shots in this film. If we'd shot on film we would have had to scan the entire film out to digital because each frame has an effect, which would have been ludicrous. I calculate that we saved about \$1.6 million in stock, dailies, sound transfers and lab and telecine costs, and we saved even more by not having to scan the film into a computer.

Of course, *Star Wars* is pretty unique because of the amount of visual-effects work.

McCallum: Yes, that's right. If you're shooting a dramatic film without visual effects and you're doing 9-15 setups a day and shooting just 350-500 feet of film, then the cost savings are going to be considerably less.

Do you think 24p cameras change cinematography in a fundamental way?

Lucas: For me, cinematography is not about technology, it's about lighting and aesthetics. It's about understanding what a good,

quality shot looks like.

We shouldn't confuse technology with aesthetics, although in a lot of cases the aesthetic is driven by the technology. I'm not going to get into an argument about whether black-and-white is better than color, or deep focus is better than shallow focus. Those are aesthetic decisions. You make those decisions by saying, 'I want this look.' You use a particular lens because you like the look of that lens.

The issue is whether the lighting is evocative of the mood that I'm after. Is it beautiful, or is it spooky? I'm interested in the emotional impact of the lighting and the framing and how that moves in time. That's what I care about.

But don't you feel that 24p has a distinct look that's very different from film?

Lucas: The great thing about digital is that I can make it look like anything. We have programs that can make it look like Kodak or Fuji [film stocks]. We're even starting now to break down the numbers so that you can make it look exactly like a particular stock.

McCallum: Does anybody think for a single second that we're going to risk more than \$100 million of our own money making a movie with a new process if it won't totally, seamlessly match the other films in the series? This is not a one-off film! It has to go from *Episode 1* to *Episode 6*. It's all designed as a 12-hour movie. It's the saga of a family with characters that carry right through from episode to episode. We would have never gone ahead until we reached the day when [digital] became indistinguishable from film.

The cinematography style in the *Star Wars* movies seems very classical. Who are some of your favorite cinematographers?

Lucas: I've always been a fan of Haskell Wexler [ASC]. I admire David Watkins [BSC], who I was fortunate to work with on *Return to*

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Digital Cinema, By George

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Oz. I'm a fan of Conrad Hall [ASC]. Gregg Toland [ASC] is one of my favorite cameramen of all time. He's a genius; I love watching his movies, especially when they're brand-new prints that look good. I like black-and-white, and I like depth of field.

[The look of] *Star Wars* is extremely controlled. I purposely kept the look reasonably conservative. I have to stay in a particular norm that is designed for young people and family movies.

I think *Phantom Menace* looks beautiful, and all of the *Star Wars* movies look great. Even though we have moody scenes, it's still reasonably straightforward in terms of framing and lighting. It's clean, nicely lit photography. I think it's aesthetically pleasing. It's not flashy or over-lit, and I'm very proud of it.

At the same time, if I had to pick what I really love to see in a movie, what I'd like to do more than anything, this is not the style I would pick.

Then why use it?

Lucas: Because it's appropriate for the material. This is a particular story that needs to be told in a very

romantic, classic, 'Golden Era of Hollywood' style. That's part of what *Star Wars* is. This film is very specifically done in the style of a 1930s Saturday matinee serial. It's an old-fashioned movie designed to be like a serial, with six episodes.

The camera doesn't move much in the *Star Wars* movies.

Lucas: In the past, the technology was not conducive to moving the camera because I had a lot of effects. Now I can move the camera a lot more. If you watch the *Star Wars* films, you're watching the progression of learning to walk in the digital medium.

Does shooting 24p change the way you work on the set?

Lucas: In general, things move faster. You don't have to worry about people stopping the process in the middle to reload film. That means I get more setups in a day, and I like to do a lot of setups on a [given] day. I realize that by taking more time you get better-quality images, but there is a point where that becomes self-indulgent.

Also, digital is fabulous for the director because he can see every-

thing. It's a big step up from video assist. The giant [36-inch plasma] screens are great for watching performances. And you'll notice that all the key people from wardrobe, makeup and props are all behind me, because the screens are so big that everybody can watch without crowding around the monitor. The screens are also big enough for the crew to see what they need to; you can see, for example, whether the netting on a wig is showing up.

If I want to see what it's really going to look like, I go back [to the engineering station] with the director of photography and look at the image on the other [24-inch] monitor. That's like watching dailies.

How do you feel about the increased depth of field of 24p versus film?

Lucas: I love it. It's much easier for me when I get into split situations, where I'm shooting across two people. It also makes it much easier for the focus pullers; they're not struggling quite as much as in the past.

I like a deep-focus look. The real issue is that if I want to take the

depth of field away, I can. Most of the shots have a bluescreen background, so all I really have to worry about are the people in the frame, and we can do the focus any way we want. We can isolate the characters in the frame and fuzz them up as much as we want to.

Sometimes I get into a situation where I can't keep both people in focus — if, say, one's in the foreground and the other's in the background. In cases like that, I'll just shoot it twice; I'll focus on one, focus on the other, and then split [the frame] and put the two focused halves together.

And that allows you to do a cleaner bluescreen?

Lucas: Well, in terms of the actors' performances it's just like doing two singles. We simply cut the foreground and background characters apart and put them together in a different way. In editing I've really gotten into taking each character, popping him out of the picture and changing the sync.

Do you often cut actors out of two-shots?

Lucas: I do it a lot. I would say that at least a third of the shots in the [new] picture have been manipulated in that way. Sometimes I've slowed down one actor because he looks up too fast, [or made other] subtle changes that make the scene much better. They're the kind of details that are so subtle it's sometimes hard to catch them on the set; you don't really notice them until you're editing. There's a constant kind of manipulation that way. To me, it's exactly like using a word processor.

Does editing mean being able to access and change every pixel?

Lucas: No. I can't do that, but I wish I could. But if someone blinks right where I'm making the cut, and I can't make the cut because it doesn't work with the blink, I just get rid of the blink. I can slip the sync so that I can get the very best performance on

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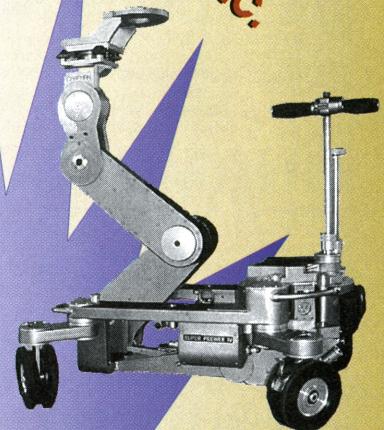


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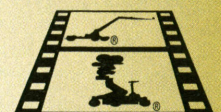
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Digital Cinema, By George

the actor to the left and still get the action to match up with the actor on the right.

In your movies you're mixing real people with virtual beings and sets created by computer. This marriage of the virtual and the real is obviously easier to do digitally.

Lucas: At this point, my business is to do fantasy movies. That has required me to push certain barriers in order to be able to create those fantasy worlds. I had to push digital special effects forward just to be able to create the kinds of imagery that I was interested in doing, because it's just not possible to do a lot of the things that I'm doing now in the photochemical process. In order for me to tell the stories I want to tell, I need the malleability, the flexibility, of this digital medium in which I can create certain characters, sets and locations that I can't do any other way.

It's not a matter of replacing one system with another. Steven Spielberg loves film. I do too, but I prefer to work in the digital world. Steven still cuts on film. I haven't cut on film in 15 years.

Most of *Episode II* was shot against bluescreens, and you used few actual sets. Is it difficult to direct a movie whose virtual sets will be created later?

Lucas: It's a matter of what medium you prefer to work in. Marty Scorsese has just finished shooting *Gangs of New York* [at Cinecitta Studios] in Italy, and he built huge sets. My film has got sets just as big as his, but mine are virtual. Marty has the added inspiration of actually being able to stand in his world and watch what he's doing. I have to conceptualize what I want to do first, and then create it. But where I can go is unlimited, and where Marty can go is limited. Even if he's got the largest set in the world, at some point he bumps into one of the streets outside Cinecitta. My sets are unlimited, and I prefer that, even

though I have to make the sacrifice of conceptualizing it.

What kind of balance do you strike between control and improvisation on the set?

Lucas: You want to be able to have ultimate control of the material, which means that you don't have to have total control on a day-to-day basis. So you can improvise within that context.

I would be bored to death if I had to sort of copy the storyboards shot by shot. I have to do a certain amount of that, especially when we're doing pickups. But usually when I shoot, I use the storyboards as a guide and am basically free to improvise.

I know the movie pretty well, so I know where I'm going, but I'm free to let the movie breathe and do what it wants to do. I've learned that in screenwriting: I can have a very concrete idea about what the plot is and what the characters are, but sometimes the characters just won't go where I want them to go.

In other words, the movie has its own life?

Lucas: Yeah, and so do the characters. If you develop really strong characters, there are certain places they won't go even if you want them to. And you have to accept that and say, 'Okay, this character can't go there unless I rearrange his personality.' The movie does the same thing. Once you start shooting a movie, it has a life of its own. The movie becomes like a horse. You can't force it to be exactly what you want. You have to trust that it has its own mind, and that it has a sense of what's happening also. You have to work together.

Do you feel there is a kind of magic or serendipity on the set?

Lucas: Oh, yes. Once in awhile I purposefully keep it loose so that unexpected things can happen. Sometimes I'll put an operator in a position where he's going to have trouble. Sometimes I will purposely frame shots to feel slightly documen-

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tary. In *Phantom Menace*, sometimes you'll see a digital character that's purposefully framed in half; I can put that character wherever I want it.

As you pointed out earlier, you can also put the real character where you want.

Lucas: But you have to be very purposeful about framing. You can make it look like the spread was a little too great between the two characters for that lens, and one of them got cut off. That gives you a documentary sense. I use that a lot to create a kind of reality; it's subtle, and most people aren't even aware of it.

What effect do you think digital tools will have on cinema?

Lucas: More people will have access to the medium. It's going to be more like novels or plays: if you have the talent, you can express yourself. To me, that's very important, and that's not been possible with film [because] it's just too expensive. Besides being more democratic, digital will allow filmmakers to have a wider range of subject matter.

What kind of subjects will digital make possible?

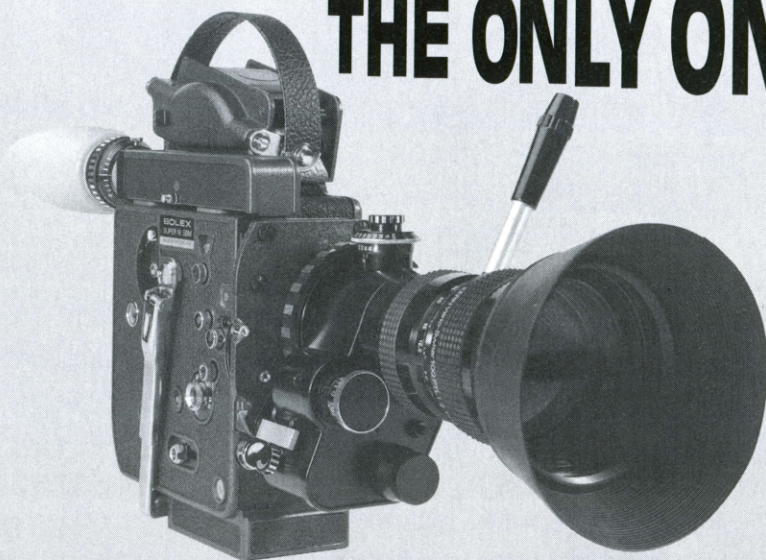
Lucas: Look at big period films. Recently, period films have been off limits unless you were Merchant-Ivory and you could do one for less than \$20 million. But you couldn't make a \$100 million period film. Digital sets have changed that.

You couldn't have made *Gladiator* five years ago. It would not have gotten made because everyone would have said that it was way too expensive for the market. And even though it ended up being an expensive movie, if they hadn't had digital technology to create those sets and environments and the larger picture, they would have ended up with a very expensive movie or an expensive small movie with 140 people sitting on a bench cheering every once in awhile.

You are perceived by many in the industry as saying that 'film is dead.'

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Digital Cinema, By George



Lucas and his crew prep the Sony cameras on location at Lake Como in Italy.

Lucas: I never said 'film is dead.' The media did.

Do you believe film is dead?

Lucas: Quite frankly, I think more people are going to prefer digi-

tal. That's what I'm saying. It's sort of like black-and-white movies — a lot of people still shoot black-and-white movies, but more people do color. That doesn't mean black-and-white

is dead, and I still love black-and-white movies. I don't believe silent movies are dead, either — any more than, say, the pencil is dead. That's different from the media saying 'Film is dead, long live digital.'

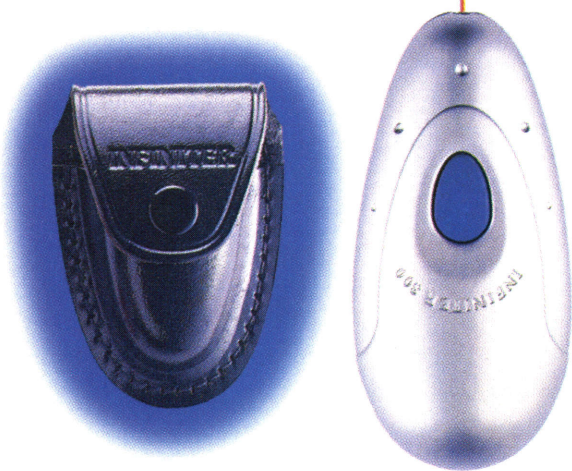
You have stated that you think film and digital are 'indistinguishable.' I can't believe that they don't look different to you.

Lucas: No, they don't look the same, but then no two movies look the same depending on the art of photography and lighting that tells the story. Digital is much more malleable than film. Film has other aspects. To say that you don't have as much leeway in digital as you have in film is erroneous. It's a *different* leeway. It's not like one is better than the other.

Will you ever shoot with film again?

Lucas: I have no idea. When I get finished with *Star Wars*, I'll prob-

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ably do some non-special-effects movies. But I imagine I will shoot them digitally because I want to use smaller cameras; I'd like to do less commercial ideas and I'll have less money to do them with.

Is there life after *Star Wars*?

Lucas: I look forward to being able to do other things. I've been lost in this *Star Wars* world for so long. Each time I commit to it, it's three films and 10 years of my life. People ask me if I'm going to do more, and I don't think so. This is the last trilogy. There will be six movies, and that's the end of the story.

Will I do other special-effects films? Probably. I know the medium very well, and it's easy for me to work in it. I want to do television. I like history. I want to do period pieces. For 30 years I've been saying that I'm going to do movies that are more experimental, but I've never gotten around to doing them.



McCallum and Lucas (in background, wearing headphones) monitor the proceedings on location. The cameras were used in five countries, and in extreme desert heat as well as rain. "We never had a single problem," McCallum maintains.

But I have another five years of *Star Wars* first. I've got a lot more ideas for movies than I've got time to do them in. Hopefully I've gotten myself into a situation where I can go

until I drop. I don't have to worry about somebody not letting me do it because I'm too old or not hip enough, or some other ridiculous reason. ■

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Framing the Future

Cinematographer David Tattersall, BSC and a team of imaging experts assess the digital cameras and techniques used on *Star Wars: Episode II*, a widely anticipated work-in-progress.

by Benjamin Bergery

Surrounded by bare blue walls, actor Samuel Jackson swats the air with a red plastic lightsaber in front of two cameras. We are on a set in Ealing Studios near London, where George Lucas is shooting pickup shots for *Star Wars: Episode II*, and Jackson is fighting off an attack by virtual beings who will be created in postproduction. It is a testament to Jackson's considerable talent that he looks cool even when he is stabbing imaginary foes.

Nearby, Lucas sits in front of two bright, 48-inch plasma screens with visual-effects supervisor John Knoll. While imperfect, the image quality on these big screens far surpasses anything seen on conventional video-assist monitors. A little farther from the action is a darkened area where Fred Meyers sits, surrounded by two 24-inch monitors and a wall of ancillary equipment. The quality of these video images is astoundingly sharp. We are on a 24p high-definition video shoot.

For several years, Lucas and producer Rick McCallum urged Sony and Panavision to provide them with cameras and lenses to shoot the new *Star Wars* movies digitally, and in June 2000 Lucas began principal photography of *Episode II* in 24p. *Episode II* was shot entirely with Sony HDW-F900 camcorders and Panavision Primo Digital lenses.

Lucas's well-publicized decision to shoot digitally has generated a fair amount of buzz — dare we say hype — in the industry. Because of the enormous amount of visual-effects work in the film, the final product will not be seen until next summer. *AC* thought it would be worthwhile to provide an advance report on the art of shooting Jedi in HD.

The CCD in Sony's F900 camera captures 1920 pixels by 1080 lines, a resolution akin to the 2K standard in post. The CCD's shape is 16x9, or 1.78:1. This format represents almost five times the number of pixels of ordinary NTSC or PAL

video. The camcorder's image data is compressed about seven times before it is recorded onto the Sony HDCAM format with Betacam-sized tapes. Like film, the duration of the tape varies with speed. At 24 fps, the longest tape load runs about 50 minutes.

What's new about the Sony HDCAM format, dubbed "Cine Alta," is the 24p frequency. The Sony HDW F900 is a kind of universal HD camera that can record at 23.98, 24, 25, 29.97 or 30 fps "p" (progressive scan), or 50, 59.94 or 60 "i" (interlace scan). In progressive scan, the entire image is captured all at once, as with film. In interlace scan, the image is sliced into two interleaving fields that are captured at two separate moments, one after the other, as with traditional NTSC or PAL. Naturally, the ability to capture an entire image progressively at the same rate as film greatly facilitates transfer to film. Indeed, many of the filmmakers who have shot with HDCAM have opted

Photos by Sue Adler, Lisa Tomasetti, Jason Snell and Paul Tiller, courtesy of Lucasfilm Ltd.

to use 24 fps progressive.

Cinematographer David Tattersall, BSC, who shot both *Episode I: The Phantom Menace* (see AC Sept. '99) and *Episode II* of *Star Wars*, says that 24p was a long time coming. (Tattersall was not available for the pickups at Ealing because he was busy shooting *The Majestic* for director Frank Darabont.) The cinematographer's credits also include *Vertical Limit* (AC Feb. '01), *The Green Mile* (AC Jan. '00) and *Con Air* (AC June '97). He has spent much of his career working on projects directed and/or produced by Lucas and McCallum, including most episodes of the TV series *Young Indiana Jones Chronicles*.

Over the past four years, Tattersall has shot many film-to-HD comparison tests for Lucas with different HD recorders and lenses. "In those [early] days," he admits, "I was convinced that there wasn't much of a case for HD. 24p was the first big jump that got HD closer to the film look by capturing the images at an equivalent $\frac{1}{48}$ of a second. The next big jump was Panavision's lenses, which are so much better than anything else we tested."

Episode II was shot mostly on soundstages in Sydney, Australia. The movie used two "Panavised" F900 camcorders for principal photography, and two for second unit. Tattersall used 6-27mm and 9.5-105mm Panavision Primo Digital zooms. High-speed frame rates for slow motion were not possible in HD at the time of production, but there are no slow-motion shots in the movie (a stylistic choice that was also applied to *Episode I*). Lucas and McCallum state categorically that not a single foot of film was shot on *Episode II*.

To get insight into the intricacies of the 24p system, AC spoke with John Galt, who worked at the Sony High-Definition Center for 10 years before assuming his present position as senior vice president of advanced



Star Wars Episode II director of photography David Tattersall, BSC surveys a scene on the set.

digital imaging at Panavision. Galt explains that the Sony F900 camera is "Panavised" to prepare it for movie sets, meaning a new sturdy lens mount is added in front, while the top and bottom of the camcorder are modified to be able to adapt to standard cinema accessories such as geared heads, follow-focus units and Steadicam plates. In addition, Panavision has developed a cinema-style modular viewfinder with twice the magnification of the standard eyepiece.

The diagonal of the $\frac{2}{3}$ " video CCD target is 2.5 times smaller than that of a 35mm film frame. According to Galt, this means that the resolution of digital lenses has to be 2.5 times better than 35mm lenses to get the same performance.

This multiple also applies when comparing focal lengths, depth of field and T-stops with 35mm optics. "Depth of field and angle of view with respect to focal length are a function of magnification," Galt says. More precisely, he states that the multiple is 2.2 times when comparing HD to 1.85:1 and more than four times when comparing to the horizontal angle of view of 2.40:1 anamorphic. For example, with the same angle of view, a 16mm HD lens corresponds to a 35mm in 1.85, while a stop of T1.6 on the HD lens would yield a depth of field that corresponds to a T3.5 in 1.85.

For those trying to work with less depth of field, Galt explains that the Primo Digital lenses have been designed to work wide open. "It's very hard to get cinematographers to accept this, but you don't need to stop these lenses down to get excellent performance — they don't get better if you stop them down," he says.

Tattersall rated the HD cameras at their film ASA equivalent of 320, and he saw HD's increased depth of field as a plus. "I always had in my mind that with an equivalent speed of 320 ISO, shooting at T3.2 would give me an equivalent depth of field to shooting at more than T11 with an anamorphic film lens," Tattersall says. "I never considered it a disadvantage to have more depth of field. Better to have it and be able to reduce it than not. It worked for Gregg Toland [ASC]."

"I started the movie working in the traditional film way, standing by the camera with a pan glass and a light meter," he continues. "But as the shoot progressed, I gradually found myself spending more and more time at the engineering station where Fred Meyers was set up, in a remote site away from the set."

Meyers works as principal video engineer at Industrial Light & Magic and served as HD supervisor on *Episode II*. He designed the video signal flow and configured a sizeable "engineering station" that included a

Framing the Future



The crew speeds ahead of actor Hayden Christensen as he races for parts unknown.

24-inch monitor and HDW F500 video tape recorder for each of the two cameras, a waveform monitor, time-code readers and generators, signal-routing equipment, an Evertz down-converting box and an HD digital-still store.

Tattersall recalls that he quickly began to adjust his lighting by referring to the big HD monitors and the signal levels displayed on the waveform monitor. "I would set the key on the set with a light meter, and once the light level was roughly where I wanted it to be, I'd do all the fine tweaking from the monitor. It was a completely different on-set routine. While setting up the shot, I was running backwards and forwards between the engineering station and the set. The process required a different approach, relying more on remote communications with the electrical department and the camera crew. I was talking from the engineering station via walkie-talkie to all of the personnel that I would normally communicate with directly on the set."

For Tattersall, the ability to evaluate his lighting in hi-def was a watershed. "Some people don't appreciate the massive advantage of lighting and shooting with the HD monitors. It's great to be able to see very clearly what your dailies will look like while you're actually setting up and shooting, instead of second-guessing what the dailies might be

like the next day, especially in the delicate areas of extreme over- and underexposure." Meyers played a key role in defining the curves and exposure and monitoring them on the set.

By all accounts, the 24p technology was particularly well-suited to the *Star Wars* project. Most of the scenes involved compositing blue-screen elements with computer-generated "virtual" characters or sets. Therefore, shooting digitally allowed the production to skip the step of transferring from film to digital. Also, Lucas has assembled a team that includes some of the industry's best and the brightest cinema wizards. This technical bent accounted for the formidable engineering presence on set.

"Shooting a *Star Wars* movie is rarely conventional," explains Tattersall. "Most of the principal photography involves blue- or green-screen work on half or partial sets built in the cover of studio stages, so it's possible to set up a semi-permanent engineering station. It would be more difficult to work that way on a shoot where you're moving to two or three locations a day. In Italy and Tunisia, Fred streamlined his equipment and worked from a mobile caravan."

Meyers notes that being pioneers in 24p shooting required a safety net. "The cameras were brand new, and we got them a week before we started shooting," he points out.

"They performed amazingly well, considering. That aside, we were learning as well, and the ability to actually see what we were shooting and get the cameras set exactly the way we wanted them was worth the effort of setting up the equipment."

He adds that the production shot for 61 days in five countries. "Even though it appears to be quite a bit of equipment, we managed to get it set up in trucks or tents rather quickly, and in some very difficult locations."

Meyers explains that the production had two levels of video-engineering complexity. "We went into the project thinking that we were going to have a so-called 'low mode' of operation, where we stripped down to a waveform monitor, a 14-inch video monitor and a laptop." (Many smaller 24p productions go the low-mode route.)

Many cinematographers note that video seems to handle less contrast than film. Galt points out that the issue of contrast is not just a question of dynamic range, but also of linearity. Film negative's response is non-linear at the dark "toe" and bright "shoulder" of the sensitometric curve. One reason that film can take so much overexposure is that it requires more light to increase highlight density at the rounded top of the curve than it does in the middle gray portion. The CCD, however, is linear, and therefore becomes overexposed more quickly.

Inversely, Galt states that the blacks at the bottom of the negative film curve have lower contrast and less detail than grays do in the linear portion. The CCD's linearity becomes an asset in that it will display good contrast and gradation near black. Indeed, many cinematographers are astounded by 24p's ability to penetrate the dark regions. "It's not like film, because by the time you get to the near-black tones, it changes," Tattersall remarks. "It has a completely different look; there's

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Framing the Future

Right: At the end of every setup, visual-effects supervisor John Knoll stepped into the frame and used a half-mirrored, half-gray sphere to measure the key-to-fill ratio and color temperature of the lighting, and to see the direction and type of units used to light the scene. Below: Fred Meyers, the film's high-definition supervisor, configured a large engineering station for the shoot and designed the video flow.



much more detail down there. The format picks up very subtle detail in those near-black tones. I would describe the look with the factory control settings as clean and sharp, with creamy, near-black detail."

With film, the greater the exposure, the denser the negative, and the more information there is for printing or telecine. It's the opposite with 24p, where overexposure entails loss of information. This has led some to compare 24p with reversal film stock, which also does not take overexposure well. Tattersall shies away from this analogy. "I considered 24p as its own thing, not as negative or reversal. If something needed adjustment, it would be done either with exposure or with lighting. I wasn't thinking 'this is film' or 'this is reversal,' I was just referring to

what the waveform monitor was telling me."

The cinematographer acknowledges that highlights pose a problem when shooting digitally. "The format does require a little more care in the area of contrast than film. Since *Star Wars* was mostly on stage, we could control that. Working outside is a bit more difficult. You have to be careful with bright skies, and with high-contrast, bright, specular reflections on shiny surfaces, whether water or chrome. Working at different settings on the camera can affect what color the peaks go. There's a tendency for an area that's peaking to gain a slight color tint.

"My approach in day exteriors was different only in terms of choosing the locations," he continues. "They were carefully chosen to be, say, the shadow side of a building, or to keep the framing off of hot skies in backlit situations. When we were shooting into a bald white sky, we knew that ILM would replace it later on with a beautiful sunset or a cobalt-blue sky filled with amazing flying creatures. It's an unusual film, in that every frame is going to be tampered with in some way."

Knoll echoes Tattersall's concerns about highlights. "The camera doesn't handle overexposure on highlights especially gracefully. Unlike film response, which saturates gradually up into a shoulder, the built-in transfer curve goes up toward white and basically just clips. So if you have a broad-colored highlight that's very overexposed, what you'll see is the different red, green and blue channels hit that clip at different points, and you get false color bands around the highlight."

For Tattersall, one of the great advantages of shooting 24p is that it requires less light to deliver the same depth of field as film. "Occasionally you read in the press that you need much more light with hi-def, but that is so untrue! On stage we were hovering around T3.2, and on exteri-

ors we were using ND filters to knock our stop down to a comfortable T5.6. We definitely needed less light. On *Phantom Menace*, which we shot in anamorphic, all of the stage work was at about T4.5. We shot that film on [Kodak Vision 320T] 5277 stock, which has the same 320 ISO rating as 24p. On *Episode II* we gained much more depth of field with much less light."

The on-set engineering configuration allowed for safety copies of the camera footage, audio syncing and NTSC video-assist dailies all to happen live. Instead of a true 24 fps, the cameras used in *Episode II* were actually shooting at the U.S. telecine rate of 23.976 fps (or 23.98). American telecine systems slow down film playback to 23.98 fps in order to have the film rate be an integral multiple of the video NTSC rate of 29.97 fps.

Meyers explains that the decision to shoot 23.98p is "really key to streamlining video-assist, audio and post. In effect, the telecine transfer happens live, the syncing of dailies happens live, and the rate conversion for audio and the speed conversion for Avids don't need to take place." He adds that ILM developed custom serial-port software that enabled all of the camera's settings to be recorded and adjusted from a laptop computer.

As scenes were shot, Meyers and Tattersall grabbed individual frames, which were put in a hi-def frame store. These frames acted as a storyboard, and they also came in very handy during the pickup shoot at Ealing. Meyers was able to do a hi-def split-screen of the original shot and the pickup, allowing for perfect matching of lighting and color.

For many cinematographers working in 24p, one of the challenges is the high number of menu settings in the camera, which adjust everything from transfer curves to color-space rendition, from highlights and blacks to individual hues. Meyers



says that although a lot of effort was made to match the different cameras and lenses, there was little tweaking on the set. "We've been really conservative. We did make small adjustments to the black and the highlight areas, just to maximize the exposure. But most of the effort was in verifying that the cameras were exactly at the settings that we decided to shoot with back at ILM."

Knoll notes, "We know the response of the camera so that if it's zeroed, we know exactly where gray is on it, and how light values on the set match to gray values. There are some good reasons to keep the camera zeroed so that something that's gray will photograph as gray. A well-known standard response ensures repeatability." The visual-effects supervisor cites the need to match footage when adding miniature or CG elements. He adds that digital timing will also produce more predictable results: "If you want darken a shot, you can do that to all of the elements as opposed to matching the colors subjectively."

At the end of every setup, Knoll stood in the frame and held up a half-gray, half-mirrored sphere. "The gray side lets you directly measure key-to-fill ratio and the color temperature of the lighting. And if you put a CG gray sphere next to it and start replicating the lighting, you can compare them until you have a pretty good match. That's a good place to start with for lighting CG objects. The mirrored side gives me two things: first, we can look at it to see the direction and type of units used to illuminate the scene, and second, we have a tool that grabs that ball and allows us to make a reflection environment out of it for reflective surfaces, like the eye of a creature or a metallic robot."

While Lucas and many in his team are great believers in the future of digital projection, it's clear to everyone that next year's release of *Episode II* will be mostly on 35mm

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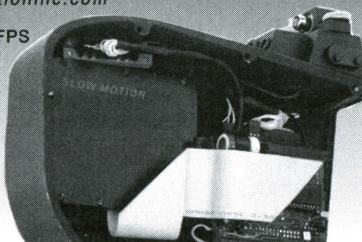
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Framing the Future

film. The look of 24p transferred out to film is therefore critical to the success of digital shooting, at least for now. In the case of *Star Wars*, the challenge is all that much greater because the film will be released in anamorphic widescreen. This is achieved by extracting a 2.40:1 window out of the 1.78:1 digital image, which reduces the number of pixels used by 25 percent. "We were basically working with 800 lines," Tattersall comments. "Considering the dubious mathematics, the film results are pretty astounding."

Although AC was unable to procure any examples of 35mm film frames for this article, Knoll relates that "to date, we've taken about 15 minutes of material out to film. During the shoot, we did a representative sampling of about five minutes of different imagery types — light scenes, dark scenes, indoor, outdoor, high contrast, low contrast — and we filmed them all out to determine what the formula was for making a really good-looking film image."

Knoll says that the first approach was to try to make the film look like the HD monitor. "The thought was that everybody's looking at the monitor, and that's how you're making your aesthetic judgments about key-to-fill ratios and contrast. The natural thing is to reproduce that, but as it turns out, that isn't what looks the best projected. There's a psychological difference between looking at something on a CRT display in an ambient-lit room and seeing that same image projected on a big screen in a darkened theater.

"It turns out that you want to film it out a little bit differently than it appears on a monitor, and we've come up with a formula that has a bit more contrast and imposes a bit on the film shoulder; we increase the contrast of the image slightly to make room for an artificial shoulder. That yields an aesthetically very pleasing film image. There's nothing about it



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that betrays a digital origin."

Tattersall adds, "Up until a couple of months ago, I was more than a little anxious about how the film version would look. But when John showed me their latest film-outs with the compensated contrast, I was very impressed and relieved."

On the set, the footage taken with each camera was simultaneously double-recorded: once on the camcorder itself, and once, as a safety, on the F-500 HD VTR. A separate digital "clone" was made afterwards, so the production ended up with three identical tapes of each angle. "Because you can split the feed to any number of recorders, including a still-frame library, it's easy to see how it would be possible with a little engineering intervention to record a safety master and simultaneously record an alternate, more experimental look that could be reviewed and tweaked from take to take," Tattersall notes.

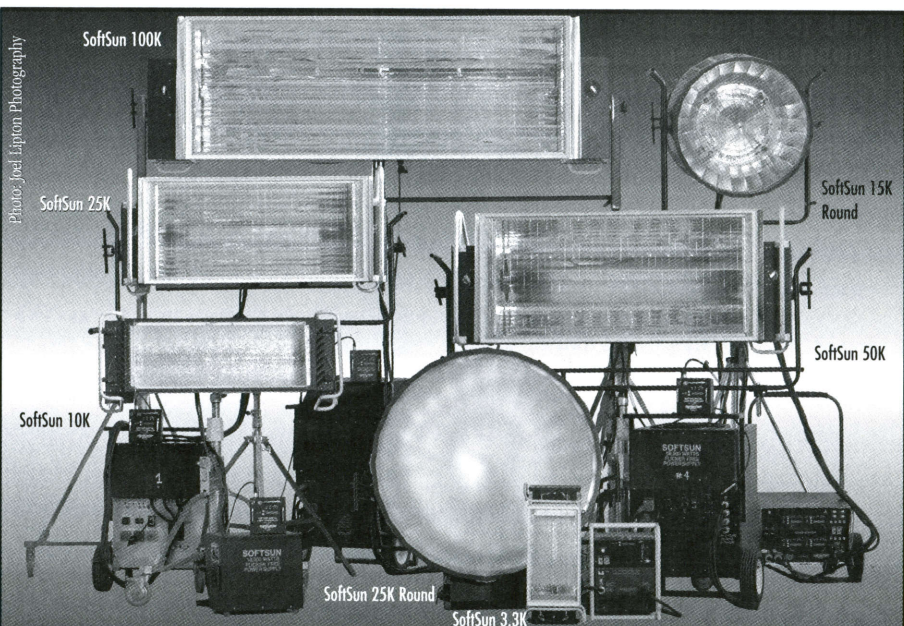
"At the moment," he concludes, "24p is just another choice, and it may be more appropriate for some types of subjects than others. The interesting aspect of digital is its potential; there's a great potential for image manipulation during and after exposure. In five years the format might be much better.

"I'm a film guy," Tattersall reminds us with a laugh. "I've been shooting film for nearly 20 years and I love it, but I do see the huge potential for digital. The cameras we used on *Episode II* were early versions, and they were a bit cumbersome. The results were pretty good, though, and it can only get better." ■

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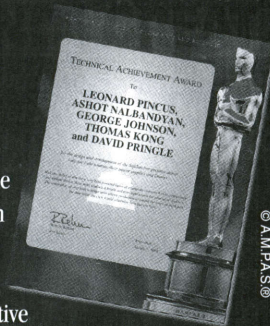
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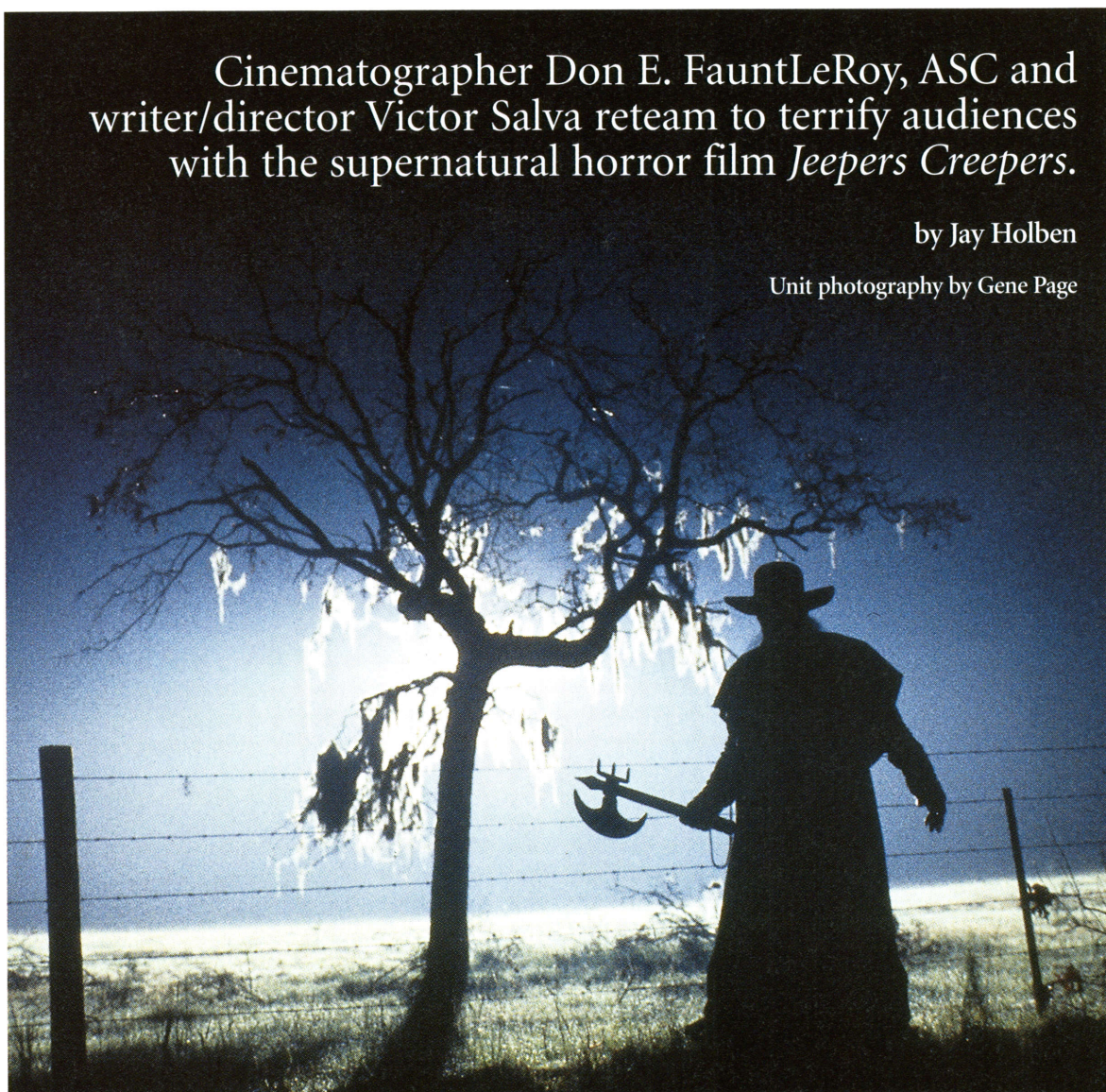
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The Road to Hell

Cinematographer Don E. FauntLeRoy, ASC and writer/director Victor Salva reteam to terrify audiences with the supernatural horror film *Jeepers Creepers*.

by Jay Holben

Unit photography by Gene Page





Opposite page: A cloaked, axe-wielding menace terrorizes two teenagers on a desolate road in the dead of night. This page: The supernatural creature bears a close resemblance to the horrific sculptures in his lair beneath an abandoned church.

With the MGM/American Zoetrope chiller *Jeepers Creepers*, writer/director Victor Salva has created a throwback to the classic screen tales of creepy monsters stalking hapless victims across dark and desolate wastelands. However, his path to the project was lit by a high-powered Hollywood beacon. “I’ve been making films since I was 12,” offers Salva. “[Early in my career,] Francis Ford Coppola saw a video that I had shot in my backyard and entered in the Sony/AFI festival. We got in touch shortly after that and he financed my first feature, a little indie thriller called *Clown House*. That film got me an agent, and then I came to [Hollywood] and did *Nature of the Beast* for New Line, *Powder* for Disney, and then *Rites of Passage*. Francis has always been like my godfather, no pun intended, and when he set up a big 10-picture deal with MGM, he chose my script *Jeepers* as the first film of that deal.”

Jeepers Creepers follows two teenage siblings, Trish (Gina Phillips) and Derry (Justin Long), as they drive home from college for spring break. As they trek across a long, deserted country road, bickering all the way, they recall the spooky tale of a teenage couple from their high school that mysteriously disappeared along this same stretch of road 20 years before. According to the local legend, the authorities found the girl’s body, but not her head — or her beau.

A short while later, caught up in their self-induced anxiety, the two drive past an old churchyard and see a dark, cloaked figure disposing of something that looks like a body wrapped in a bloodstained sheet. The figure spots them driving past and immediately gives chase. Thus begins a terrifying pursuit, with the siblings fleeing for their lives and struggling to solve the mystery of what the dark creature wants from them.

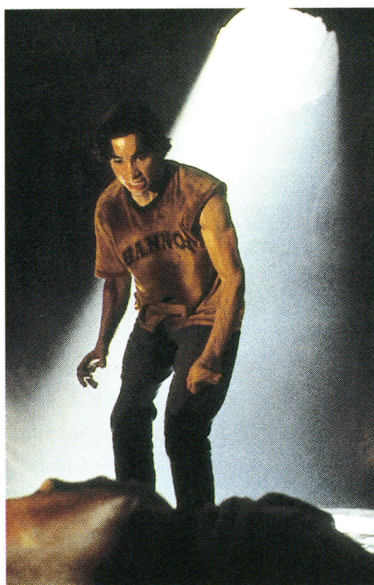
“It’s an old-fashioned horror film,” Salva explains. “These two kids run into this malevolent, supernatural force that chases them throughout this rural, Andrew Wyeth-like setting. I decided to make the characters brother and sister to avoid any sexual tension, which gets in the way of good old-fashioned monster movies. Really, this film is made from the mind of a 13-year-old, with none of that ‘sissy kissing stuff’ in there while the monster is chasing them.”

To help visualize his macabre myth, Salva turned for a second time to cinematographer Don E. FauntLeRoy, ASC, who had previously collaborated with him on *Rites of Passage*. “After *Rites*, which took place mostly at night, Victor told me he’d never write another night script again,” recalls FauntLeRoy. “Then he hands me *Jeepers*, which is set almost *totally* at night! I had to laugh.”

“Don and I decided up front that neither of us wanted a blue ‘movie night’ look for this picture,”

The Road to Hell

After stumbling into the creature's lair, dubbed the Cavern of the Dead, Derry (Justin Long) scans the enclave with a Magic Gadgets flashlight. The flashlight is designed to shine light out of both the front and back of the unit, which helped illuminate the actor.



says Salva. "Since pretty much the whole movie takes place in the moonlit countryside, we wanted to find a realistic middle ground between movie night and real night."

"Our moonlight has a clean, white look," agrees FauntLeRoy. "Unless you're going for a really theatrical, *Terminator 2*-type look, bluish moonlight looks low-budget to me. I used an exclusively tungsten package for the entire film, [with the exception of a few Xenons]. I didn't carry any HMIs at all. We had arcs and Maxi-Brutes, Dinos, and a sizable tungsten package. Because the action takes place almost exclusively at night, we didn't need HMIs, and I'm not really a big fan of those units

in the first place. I think they give off a 'metallic' look; they're very harsh, and by the time you gel them back to get rid of that harshness you lose half the light. Even for the daylight driving sequences at the beginning of the film, I went with Mole Pars and Fay lights. I think tungstens give you a much better look."

A large portion of the film takes place in the sister's car, with the siblings trying to outrun the creature's vehicle. FauntLeRoy wanted to maintain a realistic look for all of the night sequences and refrain from lighting the actors from inside the car. "It's pretty rare that interior lighting looks realistic," he maintains. "You've always got problems. If you're trying to light from the dashboard, the actors' arms are going to go super hot just so you can get exposure on their faces. It's always a compromise."

To combat this problem, the filmmakers selected a stretch of road just shy of a mile long for their principal location for the driving sequences. FauntLeRoy was then faced with the challenge of lighting up $\frac{7}{10}$ of a mile of road for several weeks of shooting. During a 2 $\frac{1}{2}$ -week pre-rig session, FauntLeRoy and his gaffer Robert Driskell decided to take a half-light approach. They lined one side of the road with six Condor units (each containing three Super Dinos) placed 450 yards

away from the action and spaced $\frac{1}{10}$ of a mile apart. To further control the spread of light across the field, they lamped the top two rows in each of the Super Dinos with 1,200-watt very narrow spot (VNS) "Fire Starter" Pars, stepping down to medium-focus and finally wide-focus globes in the bottom row. The combination of lamps created an even wash of light that covered more than half a mile across the road, and gave FauntLeRoy a solid T2.8/4 (at 500 ISO) in the center of the road.

"It was an amazing setup," recalls Salva. "You would look down the road at dusk and see these six moons just starting to rise out over the farmland. When the sun went down, it became this absolutely magical scene, like something from a fairy tale. It looked like moonlit road! What Don and I really wanted to do was make sure the whole film looked like real night, and you can't see everything in real night. We wanted to have a stylized look that would provide just enough information to show what was going on all the time, but we didn't want the audience to be able to see everything clearly."

The large "moonlight" rig offered Salva the freedom to be a bit more creative with his camera blocking. For one sequence, a police car follows the siblings down the dark road in an attempt to escort them to safety. During the shoot, the girl's car was parked on a process trailer as the police car followed with the actor driving. The scene covers a conversation between Trish and Derry in a raking two-shot from the driver's side. The camera then trucks back along the road to pick up the police officers in their car for a moment of conversation before trucking back to Trish's car — all in a single shot. "For that sequence, I had to use some Kino Flo car kits to help bring up the police in their car," FauntLeRoy concedes. "But for the rest of the driving sequences, especially those with the vehicles on a process trailer,



Derry and Trish (Gina Phillips) seek help from the reclusive Cat Lady, but the malevolent creature has other plans. Thick Spanish moss dangling from the trees made punching light into the scene difficult for cinematographer Don FauntLeRoy, ASC.

I was able to light from the outside in and maintain a very realistic feel.

"Fortunately, the road that we were on was totally shut down for us from 6 p.m. to 6 a.m. every day," the cinematographer continues. "That allowed us to spread out as much as we needed with all of our mounts and rigs. By keeping our light sources outside the cars, we gave the actors total freedom to move around however they needed to, and we could cover them from pretty much anywhere."

In one key sequence, however, there was a bit too much light emanating from the Condor/Super Dino rig. "The creature gets on top of the police car and does away with the officers as the car is driving down the road," FauntLeRoy explains. "Victor didn't really want to show the creature clearly at this point. We definitely wanted to show that he was up on top of the car, especially from the kids' point of view as they watch the police car swerving around behind them, but we didn't want to show his

face or reveal any details beyond his shape and the horrible axe he's wielding. We therefore wound up flying two 12-by-12-foot black silks along the side of the police car; those helped us to cut the light from the Super Dinos off the creature's head, but still show his body and the police in the car below. We then rigged five little open-face sources, or Teenie-Weenies, on outriggers off the back of the police car to backlight the creature. The result is really ominous."

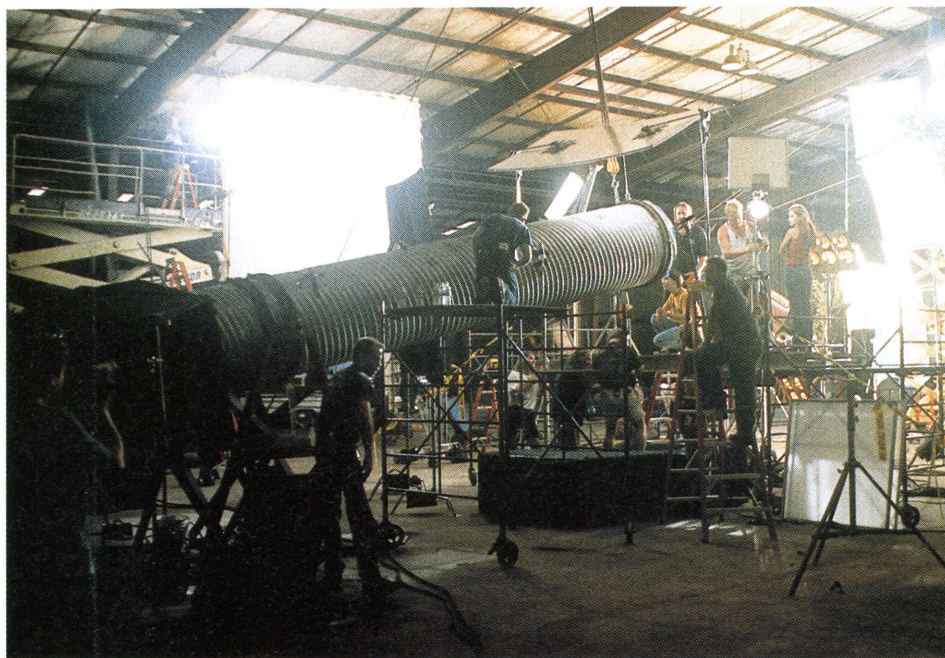
In choosing his film stocks, FauntLeRoy turned to Eastman Kodak EXR 500T 5298 and EXR 50D 5248, both of which he rated normally — although he admits that he routinely opens up a third to a half stop from his meter reading for each shot, which "in effect rates the 98 at about 400." His choice to shoot 98 as opposed to Kodak's Vision 500T 5279 was primarily an economic one. "We shot with two cameras on pretty much everything and sometimes used up to six cameras on some of the stunt sequences. Because

of the amount of stock we were shooting — and because Kodak gave us a really good deal on the 98 — I went with the EXR stock. I think the 98 is a great stock, and I was able to put the money we saved into our lighting package."

Cost once again became a consideration when it came time to print the film. "We wanted to print on Kodak Vision Premier stock, but



The Road to Hell



Engulfed in a sweltering Central Florida heat wave, the production opted to shoot all stage work at night. In the photo above, the crew works on close-ups of the tunnel leading to the demonic creature's lair. Upper right: FauntLeRoy watches a rehearsal. The production shot with two cameras as often as possible.

Right: The camera car and process trailer were valuable commodities for the shoot. Here, the rig is used during one of the show's rare day shoots.

we were doing 2,000 release prints and MGM wasn't able to cover the cost difference between the Premier and the regular Vision print stocks," explains Salva.

Adds FauntLeRoy, "I wasn't happy with the blacks that we were getting with the regular Vision print stock. *Jeepers Creepers* is a horror film, and we built it to have solid, rich blacks, but I wasn't seeing those on the regular prints. Then the lab suggested using Fuji's new high-contrast stock. I normally associate Fuji with a softer, more pastel palette,

but we did some tests and I was blown away. We got the blacks we were looking for within the budget we had. All 2,000 of the prints will be run on the same stock, so we won't have just a few show prints that look exactly how we want, while the rest of the run is a compromise."

The film's budget also affected the filmmakers' choice of format. "We originally wanted to shoot in 2.35:1 anamorphic," the cameraman notes, "but with the already tight budget I knew we couldn't afford the lighting I'd need to shoot at a T4/4.5



and get the desired depth of field. I also didn't want to go with Super 35, because everyone I talked to told me I was not going to like the grain structure by the time we started doing dupes. In the end, we stayed with the spherical 1.85:1 format."

Although the script is set in "Any Rural Place, U.S.A.," the production used Central Florida as its principal location. Salva says he was initially astonished by the idea. "[I thought,] 'This has to be Norman Rockwell land! I can't have South Beach palm trees in this movie!' But they showed me pictures of horse country in Central Florida, and it was gorgeous, especially in Yahala, where we wound up shooting. The problem was that we were a bit late with our funding and wound up arriving in Florida when we were originally supposed to be leaving — in the middle of an incredible heat wave. There were some days that were 110 degrees with 80 percent humidity, and it was just unbearable. Thank God we were on nights for most of the shoot, or we wouldn't have survived. Even when we went to stage work at the end of the shoot, we opted to stay on nights so we wouldn't have to deal with the heat."

Although most of *Jeepers Creepers* takes place in the main characters' car, the teens stop several times to try to get help. They pay one of their first visits to the Cat Lady's house, where a reclusive old woman (Eileen Brennan) lives with 20 felines. "The front yard, where a lot of that sequence takes place, was draped



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The Road to Hell

Opting not to use phony dashboard illumination, FauntLeRoy went for realism by letting moonlight from large tungsten sources light the actors inside the car. For this shot, a bit of fill light was also provided by a smaller unit on the car's passenger side.



with huge Spanish Moss trees that were nearly impossible to punch light through,” FauntLeRoy recalls. “We also had a lot of action that played out in the street in front of the house. I not only had huge units spread out over a good half a mile — with seven Condors flying with Dinos and 20Ks — but also 35 to 40 Mole Pars scattered along the ground to backlight the trees. Even with all those units cooking, the scene plays very dark. Getting light through those trees was really tough!”

After failing to find refuge from the creature at the Cat Lady’s house, our heroes make their way to the local police station, where they are once again thwarted by the malevolent being. “When they get to the police station, the power goes out,” FauntLeRoy explains. “Victor asked me, ‘How are you going to handle this? There are no lights at all!’ I replied, ‘Simple, I’ll just light the walls.’ We played a bit of light coming through the windows, and I lit the walls to play all of the sequences in silhouette. We used really powerful flashlights created by Bobby Driskell to light the rest of the scene.”

After the power fails at the



police station, the kids decide to turn the tables by stalking the creature and battling it out. They make their way into his lair, which is housed in an abandoned church basement, and discover his terrifying art collection of dead bodies hanging from the ceiling. “We called that set the Cavern of the Dead because he’s got this kind of Sistine Chapel of corpses,” Salva offers with a gleefully sadistic smile. “He eats certain parts out of people and then takes the remaining body parts, sews them together in various poses, and hangs them from the ceiling. I wanted the reveal of this terrifying display of grotesque art to be

gradual. It’s really the button for the scene, and I didn’t want to show it all right away.”

FauntLeRoy adds, “When Derry, the brother, tumbles down this long tunnel and into the creature’s lair, the only light in the lair is coming from the other end of the tunnel. I shot a 7K Xenon down the length of the tube and aimed a 20K down the stairwell at the back of the set to provide a bit of backlight. We also created bounced light by strategically placing three Mole Pars throughout the set and aiming them into pans of water holding pieces of broken mirror. Our actor, Justin,

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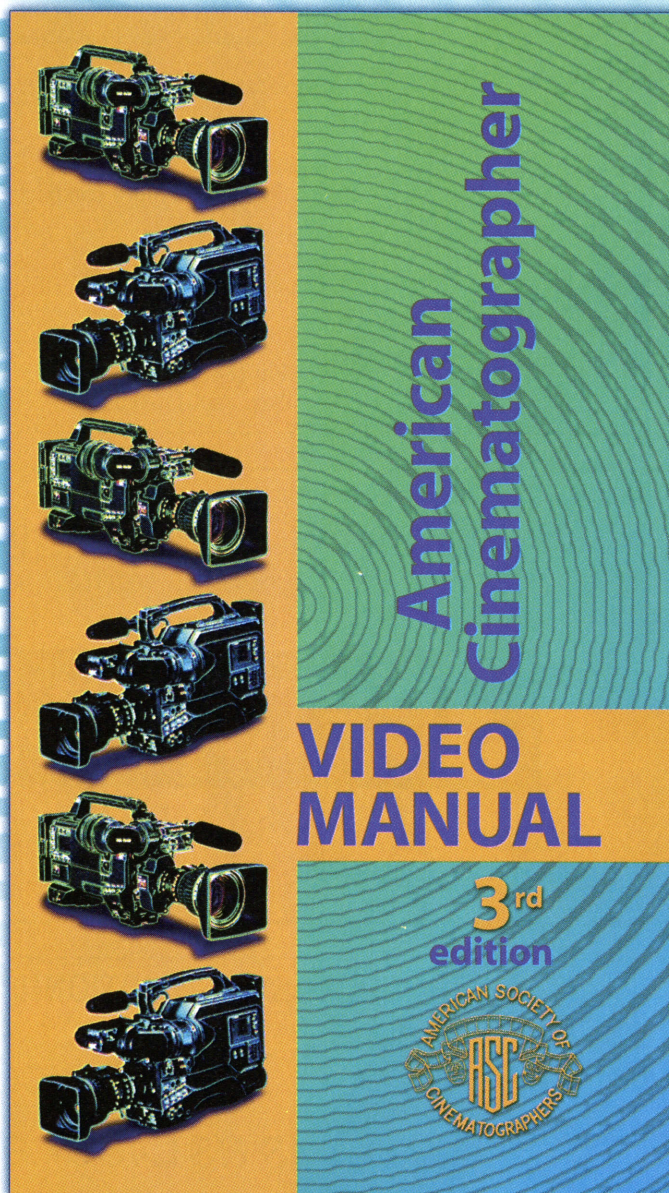
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ABOUT THE AUTHOR: Michael Grotticelli is uniquely qualified to edit this book. He has been covering the professional video industry for more than 12 years. His credits include: Technology/New Media Editor at Broadcasting & Cable; Editor of Television Broadcast; News /Technology Editor of TV Technology; and Managing Editor of Videography.



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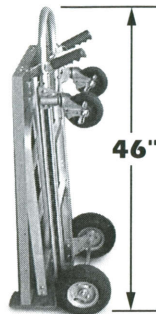
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The Road to Hell

carried a specially built flashlight from Magic Gadgets; it runs off of a battery pack strapped to the actor's ankles and has lights on both ends, and the bulb built into the back illuminates the actor. It's a great tool.

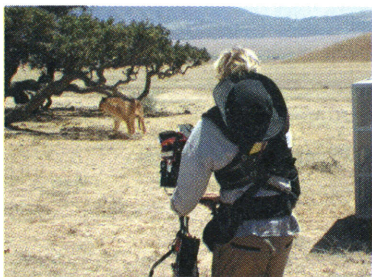
"To gradually reveal the full set, we had 15 12K space lights on dimmers that were placed as far away from the set as I could get them; we slowly dimmed them up, as if your eyes were getting used to the dark and slowly making out the details. When Derry finally realizes what he's seeing, we reveal the whole set in its horrible glory. It's a very creepy effect."

The final struggle between good and evil takes place in the rusted remains of an old meatpacking plant. Although he's very pleased with the final look of the plant, FauntLeRoy recalls the struggle he endured to achieve it. "There's a whole wall of windows on one side of the plant, and I originally wanted to black all of the windows out. I thought we could tent the place in, punch holes in the windows with a hammer and let shafts of light from our arcs stream into the plant. That would have taken too long to set up, though, so that idea went by the wayside. As we were lighting the plant, we got really lucky; a huge storm passed over and it got really dark outside, which gave me exactly the feel I was looking for. I wound up lining the place with 50 Mole Pars lamped with VNS globes, and shooting them straight back at camera. The special-effects guys had rigged the place with dripping water and cobwebs, and with the Mole Pars backlighting all of that stuff and the twisted, rusted metal pipes, we were able to create a wonderful, ominous feeling.

"I think we've made a really creepy film that's a lot of fun to watch," FauntLeRoy concludes with a grin. ■

Short Takes

Stranded on the Tube; A Diary Springs to Life



Lost and Found

by Stephanie Argy

A promo campaign for a television series has its own structure and rhythm, like a story played out in continually evolving segments of 30 seconds or less. Early spots are designed to pique the audience's interest, while later ones provide more specific information. To give a startling launch to the campaign for *Lost*, a reality-based series that will air on NBC this fall, cinematographer

James Mitchell Belkin worked with the NBC Agency and producer Romi Laine Hoffman to create a pair of promos that would set an extreme tone for the show.

The premise of *Lost* is that three teams of two people will be taken by helicopter to a remote location and left there alone. With limited resources and no idea where they are, they must make their way to the Statue of Liberty.

The first spot consists of a single shot of a beautiful vista meant to evoke an African plain. (It was actually shot north of Los Angeles at Tejon Ranch.) After a few moments of tranquility, a man suddenly plummets from the sky. After crashing to the ground, he climbs to his feet and staggers away.

Directed by Joe Livecchi, vice president of the NBC 2000 division of the NBC Agency, the promo features stuntman Scott Rogers, who did similar falls

in *Being John Malkovich*. Stunt coordinator Eddie Braun says Rogers fell 17 1/2' for the *Lost* promo. At that height, he explains, Rogers could land on the ground rather than on a buried stunt pad, giving the shot a better sense of realism.

But while a fall from that height doesn't require a pad, it's not an easy feat. "I told the producers it was going to hurt," Braun says. But he draws an important distinction between being "hurt" and being "injured." "Hurt is just soreness and pain," he says.

To further enhance the illusion that the fall was from a great height, Belkin's Arriflex 435 was placed in a hole in the ground so that it could shoot from as low as possible, and a 10mm lens was used to make the camera's field of view seem even wider. Because Livecchi wanted vibrant colors, Belkin chose Kodak EXR 5245 and employed a Tiffen Chocolate #2 filter, a Schneider True-Pol polarizing filter and a Tiffen Enhancing filter (to help bring out the foliage).

The second spot gives more detail about the kind of adventure a *Lost* contestant is likely to have by condensing the journey into a high-speed, 30-second thrill ride. The director of the promo was Kendall Bowlin, design director of the Magic Room, another NBC Agency division.

The promo follows the contestant through a series of environments ranging from rainforest to desert, all photographed as if from the POV of a running man — in this case, Steadicam operator Colin Hudson, whose arms and legs actually flail in and out of view in the promo. Early in preproduction, Hudson made a case for using 16mm rather than

Steadicam operator Colin Hudson and his helpful assistant show off the lightweight and compact rig design he came up with for the Aaton A-Minima Super 16mm camera while shooting the *Lost* promo.



Hudson demonstrates just how small and light the Steadicam rig was. The setup allowed him to sprint through the woods point-of-view-style for multiple takes without tiring. Bottom right: Hudson rides on the Mule off-road utility vehicle for a 40-minute time-lapse shot.

35mm, knowing he would have to run at top speed for virtually the entire shoot. He also suggested a camera he had seen at Showbiz Expo, the Aaton A-Minima. After doing some research of his own, aided by first camera assistant Alec Boehm, Belkin agreed.

"It's an amazing piece of engineering," says Belkin. "You have a camera that can shoot time lapse and high speed, but that weighs about the same as a 400-foot magazine of 35mm film." Not only is it steady, he adds, but it's also quite reliable. Even under adverse conditions, the two A-Minimas held up perfectly on the shoot.

The camera can be fitted with either PL or Nikkor mounts. For this project, Belkin occasionally shot with a Zeiss 9.5mm, and in one case a 25mm, but he mainly used a Century 6mm with a 4.5mm wide-angle adapter. Using the adapter rendered the focus marks on the lens barrel useless and resulted in one basic setting, near close focus, where everything was sharp. To find that sweet spot, first camera assistant Greg Ulrich took time during prep to mount the lens and adapter on an optical projector and precisely determine the setting.

Because the spot was ostensibly a person's POV, Belkin tried to keep the look as clean as possible; he used no filtration aside from a little neutral density from time to time. He did use an optical flat to protect the lens from thorns, branches and — in the promo's one quiet moment — water, which was poured over the lens to simulate a drink from a canteen. (Further protection came

from a one-gallon Ziploc bag, which completely enclosed the tiny camera.)

One of the most innovative images in the promo is a traveling shot heading toward the sunset as the sun plunges behind the horizon in very fast motion. Devised by Bowlin, the shot was accomplished with a Mule off-road utility vehicle rigged by key grip David "Gonzo" Gonzalez. Hudson sat on the Mule with one A-Minima on his Steadicam; the other was mounted on the vehicle's bumper using a Chapman Vibration Isolator rig. As dolly grip Scott Froschauer drove the vehicle toward the setting sun at a constant slow pace for 40 minutes, the cameras' intervalometers clicked off 1/4-second exposures once every three seconds. The foreground is blurred but the background remains sharp, creating a fast, edgy motion. "It looks as if you've covered four miles within four seconds," says Belkin. "It's quite dynamic."

Still, the primary attraction of the A-Minima was its size — fully loaded, it weighs less than 5 pounds, which gave Hudson's Steadicam operating an unusual vitality. "It was like having a Steadicam operator on the moon," says Belkin. "He was flying through the fields and hills."

Hudson says it took some effort to make his Steadicam work with such a small camera, though. "The lighter the camera is, the harder it is to keep steady," he says. To get the rig light enough to balance with the A-Minima, he replaced his normal monitor with a small video recorder, and he used one battery instead of his normal three. "It became like a stick with a camera on it, but with a really good gimbal," he notes. He had recently changed to a Pro arm, and he says that the versatility of the arm, which can handle 13-72 pounds, made the job possible.

The A-Minima's magazine uses 200' film loads, and Kodak now sells seven stocks packaged for use with the camera: EXR 50D 7245 and 100T 7248, and Kodak Vision 250D 7246, 200T 7274, 320T 7277, 500T 7279 and 500T 7284. On this shoot, Belkin used 7245 so that he could shoot 1/4-second exposures in

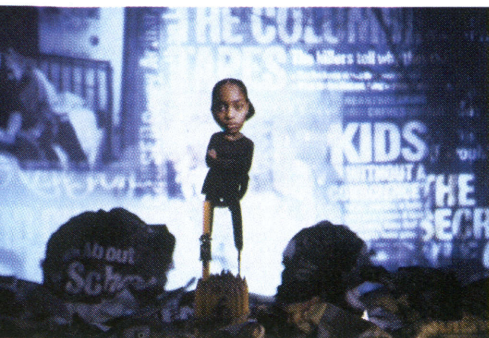
the bright desert sun without piling on too much neutral density; he used 7246 for shots done closer to magic hour, and he used 7279 for a night sequence. He pushed the 7279 one stop and says that it held up, though not quite as well as in 35mm. He adds that the director liked the look of the pushed stock.

Bowlin wanted the time-lapse sunset shot to be followed by a night sequence, and Belkin used 4K tungsten lighting balloons to create a moonlit look. To introduce additional illumination, Hudson carried a flashlight, which he whipped around at trees as he ran past. Although gaffer David Besdesky had made a special light, an Arri Pocket Par dressed up as a flashlight, it turned out that the largest Sure-Fire flashlight was more than powerful enough, especially in contrast to the relatively dim glow of the helium lights. Otherwise, the promos were lit entirely using gold and silver reflector boards.

Belkin says that his only real complaint about the A-Minima is the quality of the video tap. Not only is it black-and-white, he explains, but it also has a tendency to vignette. "We're all spoiled by the image we get from the 435's video tap," he says.

Fortunately, framing was less critical than energy on this project, and the A-Minima proved to be exactly the right camera, especially from Hudson's perspective. "It was like the camera wasn't even there," he says. "For two days of crazy work, I was able to maintain my stamina. I couldn't have done it with any other camera."





A Digital Diary

by Stephanie Argy

Computer-based tools such as Adobe After Effects have made it possible for filmmakers to do composites and animation that only a few years ago would have been impossible for all but high-end studios. As more people experiment with those tools, they find new ways to use them for storytelling.

The short film *LaToya's Diary* was assembled entirely in After Effects, a 2-D animation program that enables the artist to create animated compositions by layering images and footage, then changing layer properties such as size, opacity and position over time. The program proved ideal for *Diary*, which was envisioned as a kind of moving scrapbook that used live-action digital video, textual elements, tabletop stop-motion animation, and still photographs of miniature sets and hand-crafted models to illustrate excerpts from a real diary written by a young girl.

Part of an HBO documentary about the pressures of being a teenager, the short was designed and created by the New York-based company FDG. Director Michael Uman needed to find an innovative way to tell the story

Using readily available computer software such as Adobe After Effects and Photoshop, designer/ animator Efrain Montanez combined photographer Gavin Wilson's stills and cinematographer Jonathan Furmansk's digital video with animation and paper cutouts to create a scrapbook feel for *LaToya's Diary*, a short film directed by Michael Uman.

because the parameters of the budget and project required him to be unusually resourceful. To create the elements he needed, he turned to photographer Gavin Wilson and cinematographer Jonathan Furmansk.

Wilson is a photographer who builds models and puppets and shoots them to create illustrations, such as a series of covers that he made for the DC Comics series *Sandman Mystery Theatre*. Because Uman wanted to incorporate layered elements into *LaToya's Diary*, he asked Wilson to help conceptualize scenarios that he could use to evoke *LaToya's* world. Wilson ended up becoming even more involved, though, building models and shooting still images for the project.

In addition to Wilson's stills, Uman asked Furmansk to shoot elements on DV. "It was originally supposed to be only computer-driven, but Michael wanted to add a little more life to it," says Furmansk. He remembers that Uman warned him that *Diary* wouldn't be a lucrative job, but would offer him a lot of cool things to shoot.

Another important contributor to the project was Efrain Montanez, a designer and animator who worked in both Photoshop and After Effects to devise elements and later put them together. Early on, he and Uman created storyboards and style frames that they could show to the client to convey the look they were proposing for the project. To play up the feeling that this was a scrapbook, Montanez incorporated a lot of paper-like textures, many of which remained in the project all the way through to the end.

Much of the story is told using handmade miniatures and sets that were no more than 3'x5' in size. In one part of the movie, as *LaToya* describes her home life, Wilson and Uman created the image

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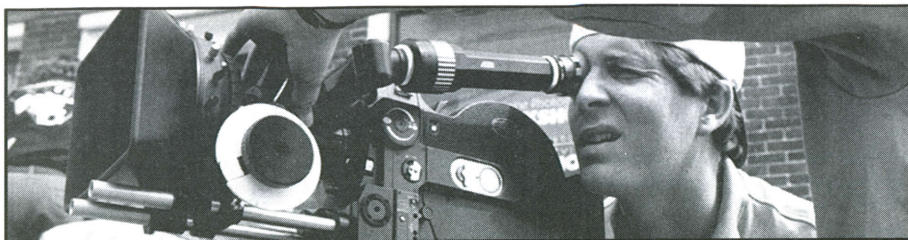
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of her mother by taking the upper torso of a cake doll that Uman had found in a thrift store and giving her a skirt made of broken porcelain shards. In another sequence, a still image of the girl playing LaToya was cut into pieces and put back together, with a school pencil compass serving as her legs. This was then photographed against a rear-projection of a headline collage that showed some of the realities confronting today's youth.

While many of the project's multi-layered images were created in After Effects, some were done live. Some of the sequences involved what Furmanski describes as "poor man's rear-projection." Slides that Wilson had shot — some of them directly off a computer monitor — were projected onto a very light opal diffusion. From the other side, Furmanski videotaped the projection using a DV camera. Because DV is so light-sensitive, they were able to use a normal slide projector rather than an unusually bright one.

Many of the images in the movie feature objects that figure in the girl's diary. A pencil illustrates her frustration with what she's being taught in school; a Jack Daniels bottle underscores her father's drinking problem. Wilson shot stills of these and other objects using a Nikon N2000 35mm camera and Fuji Provia slide film, which produced a highly saturated image that could either be projected or scanned into the computer. Other images, created by Montanez in Photoshop, were printed onto 8 1/2"x11" inkjet transparency film. These, too, were used for rear projection, as well as occasionally placed in front of the camera.

In addition to tabletop and model work, Furmanski shot live-action video of the young girl who portrayed LaToya. In keeping with the run-and-gun approach of the project, those scenes were done just around the corner from the FDG office, in an abandoned storefront. Other live-action footage included a shot of Uman brushing his teeth, for a frothing-at-the-mouth image.

FDG owns much of its own equipment, including the DV cameras used on the shoot — a Canon XL1 and a Sony

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TRV-900, both of them three-chip cameras. Uman says that while he slightly prefers the image quality of the Sony, it doesn't have the lens options of the Canon.

Working in DV has taught Furmanski to work at the extremes, at least in terms of his lens choices. "If you try to do anything middle ground, it ends up looking very flat," he says.

Because the sets were so small, so were the lighting requirements. Furmanski wanted to do a lot of single-source lighting to make things more dramatic, and he was able to provide much of his illumination with just a D-cell Mag-Lite flashlight. For larger washes of light, the production company used its own small Lowel lighting kit. "If we rented anything, it might have been a C-stand," says Furmanski. He kept his lighting very raw, using no gels or diffusion. "On this particular project, we weren't so concerned about making all of the color temperatures match."

The actual assembly of the movie began with the audio track. "Sound design is half the job," says Uman, who has a background in music. An animatic was made to accompany the soundtrack; as the project progressed, the original animatic was gradually replaced, scene by scene, with the real footage.

Furmanski used little filtration while shooting. He explains that because of the limited resolution of DV, filtration — especially diffusion — shows up quickly and is impossible to eliminate. Furthermore, because an important feature of After Effects is its ability to do color correction, he knew the image would be heavily manipulated in the computer. In particular, the heavy tobacco tint added in post helped underscore the theme of alcoholism that runs through *LaToya's Diary*.

Montanez says that another big strength of After Effects is its transfer modes, which control the way different layers affect one another. Using transfer modes such as overlay, color dodge, color burn and hard light creates different looks for the final image, increasing the apparent transparency of some layers and decreasing it in others. Using

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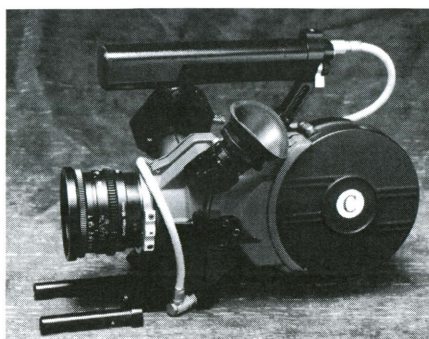
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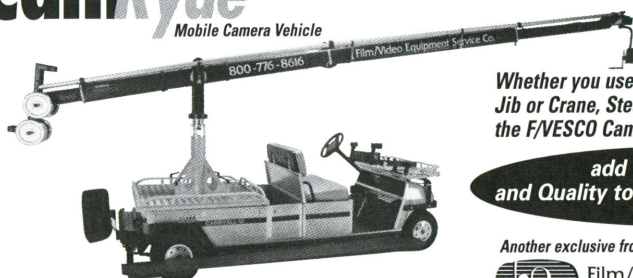


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As many as 200-300 layers were built up in After Effects for the project, which details the trials and tribulations of a teenager.

these and other techniques, Montanez created a moving collage out of the footage and images that had been shot and given to him. He estimates that by the time he finished assembling the project in After Effects, he had built up 200-300 layers.

The finished project was rendered as an uncompressed QuickTime file so that it could be mastered out to DigiBeta. According to Uman, this was because typography and other graphic elements don't hold up well in the DV format. "It's really a wonderful format, but you have to know how to use it," he says. In general, he finds it much better to shoot in progressive scan because it has a bit of flicker, which makes it read more like film. "With field-rendered video, you're getting too much information, so it looks computery," he says.

LaToya's Diary won a BDA Design Award this year, and it has also become part of the MOGRA on-line festival of After Effects art and design. It will begin appearing on HBO this month.

Looking back on the project, Furmanski is impressed by how much After Effects brought to it. "It's amazing to me that this off-the-shelf software can do things that you needed Paintbox to do 10 years ago," he says. "You can get a full-fledged postproduction suite in your house. Even just playing around with Photoshop, you get an idea of how powerful the software has become." ■

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compiled by Douglas Bankston



Australian Backdrops

Stage-based film productions are constantly faced with the challenge of transforming two-dimensional backdrops into three-dimensional backgrounds, and larger sets inevitably mean larger backdrops. Not only do these backdrops use a lot of textiles; they also present more inherent problems, whether the backdrop is a TransLite or painted cyclorama.

Such a backdrop usually needs to be lit with a stop or two of overexposure to bring out detail that will give greater depth of field, thus making the background more focused. But imperfections, welds or seams will be more prominent.

This very predicament recently confronted the rigging crew of the feature film *Down and Under* at Fox Studios in Sydney. However, the rigging crew overcame it by rigging a large white seamless net from Australian company Rocket Film Equipment in front of the backdrop, effectively softening the image.

Alternatively, green or blue chroma-key screens may be used and the background image keyed in. Either way, hundreds of feet of textiles are required.

Star Wars: Episode II, shot recently in Sydney, used 1,200' of



chroma-key fabric supplied by Rocket Film Equipment to create green and blue cycloramas. Rigged on semicircular pipe, the screens surrounded the stage. Veltex was the fabric of choice, suspended by chain blocks. Pulled taught, the cloth produced a very smooth backdrop.

Rocket Film Equipment is a specialist light and grip textile supplier based in Sydney, Australia.

For more information, call (02) 9568-6062, fax (02) 9568-6324, e-mail: sales@rocketfilmequipment.com.au, or visit www.rocketfilmequipment.com.au.

New Prague Studios Open in October

by Rochelle Winters

Prague Studios, a soundstage facility with plans to grow into a business and creative community for the

entertainment industry, will open in the Prague suburb of Letnany on October 1. The studio will be home to three stages, two of which will be larger than any other in Central Europe. There will be production offices; work and storage areas; and business space for equipment rental, postproduction, visual effects and other filmmaking services. The studio's long-term vision is to build a state-of-the-art digital infrastructure for all facets of the filmmaking process.

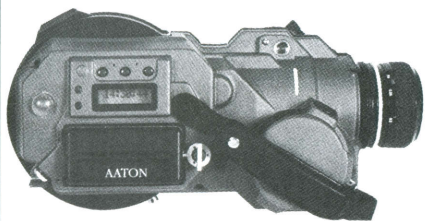
Prague Studios will be located on the former Letov aircraft-manufacturing site, six miles from downtown Prague and near the main highway to Berlin. The soundstages will rent for far less than comparable spaces in Central and Western Europe. Stage One will measure 314'x102' with a grid height of 35', and Stage Five will be 198'x102' with a grid height of 43'. Stage Two will be divided into four spaces, each approximately 82'x70', and will serve as the prep and office area for Stage One. When it is not being used as a workspace, Stage Two will be available for smaller shoots.

All three stages will be equipped with more than 1,000 kilowatts of power. They also come with access to train tracks (owned by Prague Studios) connecting the facility with the city's central rail station. The railroad will enable filmmakers to transport large, specialized equipment straight to their doors, but will only operate to meet production needs.

Over the past two years, the Letov aircraft hangars have been used in their raw state for motion-picture, television and commercial productions. The ABC miniseries *Anne Frank*, the Sci-Fi Channel's *Frank Herbert's Dune*, NBC's *The Lost Empire* and New Line Cinema's *Blade 2: Bloodlust* were all shot there. The site was closed for renovations in mid-July this year to install soundproof-

Thanks to Rocket Film Equipment, a seamless white net rigged in front of this backdrop softened the image yet maintained depth of field, effectively masking backdrop seams and imperfections for the film *Down and Under*. Rocket Film Equipment is a specialized textile supplier for productions.

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ing and new heating and electrical systems, and to modernize the physical structure.

When Prague Studios reopens next month, it will be under the joint ownership of Buffalo Holdings, LLC, and executive producers Tomas Krejci, Howard Woffinden and Greg Gold. The studio will be managed by Buffalo Holdings, whose principals Philip Schonberger, Stephen J. Albert and Lisa Silvestri have wide-ranging experience developing and managing commercial real estate and fine arts, cultural and nonprofit institutions, and producing for TV and theater. Schonberger will divide his time between the Czech Republic and Buffalo's Connecticut headquarters to supervise a soon-to-be-named, Prague-based operations team.

Krejci, Woffinden and Gold will serve as advisors. The trio founded the production company Milk & Honey Films, which is headquartered in Los Angeles and has additional divisions and/or partnerships in London, Rome, Moscow, Montreal and Mexico City.

Milk & Honey joined with Buffalo Holdings to purchase the new Prague Studios site after the miniseries *Dinotopia* was shot in London rather than the Czech Republic (its first choice) because of lack of available stage space. Since the fall of the Iron Curtain, Prague has developed into a destination of choice for filmmakers around the world. Hollywood productions spent more than \$200 million there last year, according to *The Economist*.

Within the next several years, Prague Studios intends to become a media center with the infrastructure to serve the industry's growing high-tech needs. This includes not only digital effects, but also high-definition and interactive entertainment. The partners are currently evaluating plans to make the facility digital-ready, which will include installing broadband systems.

Seventeen acres of open space are yet to be developed. And just next door, the Czech government is erecting a new national exhibition center that promises to become a nexus for Prague's arts and entertainment community.

For more information, contact: in Los Angeles, Howard Woffinden, (323) 993-9600, email: howard@praguestudios.com; in Prague, Tomas Krejci, 420 2 5732 0515, email: tomas@praguestudios.com; in London, Martin Bruce-Clayton, 44 208 342-8421, email: martin@praguestudios.com; or visit www.praguestudios.com.

Working with Kodak's Expressive New Stocks

by Simon Gray

Kodak's two new 500 ASA stocks, the 500T SO 663 and the Vision Expression 500T 5284, were recently put through their paces by commercial director/cinematographer Brendan Williams, ACS and feature cinematographer David Foreman, ACS. Both stocks boast increased sharpness, less color saturation, lower contrast and wider exposure latitude than their predecessor, the Vision 500T 5279.

For a 60-second spot for Hear and Say, an organization that teaches deaf children how to speak, Williams says that he "was after a natural look, and I had a lot of faith in the SO 663 after hearing what Kodak said about it." Williams shot the spot in the Super 16 format on an Arri SR-2, using a Canon 8-64mm zoom lens. The camera was mounted on a Hot Head and Jimmy-Jib.

The commercial was set inside a community hall and featured young dancers on a raised stage in front of a "full house." Williams used large windows down one side of the hall as the main source of light, employing four 5K tungsten lamps gelled with 1/2 CTO mixed with the ambient daylight to create a late-afternoon look. At the rear of the stage, Williams used two 2K open-faced lamps gelled with 1/4 CTB to provide separation from the warm key light.

Williams says that before using the SO, he was not a great believer of using 500 ASA film in the Super 16 format. "Generally when I need the higher speed in Super 16, I've used the 320T. So I was anticipating having to wear the grain as a look in itself. When

we came to do the best-light transfer, however, I was amazed at the absence of grain.

"In terms of the contrast, I would have been happy if the unlit side of the talent's faces, which I negative-filled, went black. Despite being three stops under, however, I could still see plenty of detail in there. The windows would have been about seven to eight stops over our shooting aperture of f4, yet I could still pull detail out of them in the transfer. The way the SO renders colors and contrast gives the stock a very 'filmic' look, seeing into the blacks the same way your eye does, so I believe that you can confidently light by eye with the SO and throw your meter away. You can also move faster because you don't need to worry so much about fill light."

Williams believes that the SO has two main attributes: its ability to capture the subtleties of natural light while avoiding a reliance on fill light, and providing a low-contrast image that offers increased choices in post. "We did two versions of the spot, one that was heavily graded and another in which we simply crushed the blacks and introduced some contrast. It's possible to achieve two very different-looking commercials. The SO is ideal for commercial and drama work that is finishing on tape, by virtue of keeping all the information for later use in post."

In preparing for the MOW *Code 1114*, Dave Foreman, ACS (*Cut, The Real Macaw*) tested the Vision 500T 5279 against the newer Vision Expression 500T. While *Code 1114* is being finished on video, Foreman wanted to see a one-light print in order to ascertain how the Expression negative was reacting to the tests. In comparing prints of the two stocks, Foreman really noticed the difference in the way the Expression held the shadow areas. "The Expression really hung on longer in the blacks, and I noticed this quality more in the shadow areas than in the highlights." Foreman found that doing the film-to-tape transfer on the Sony Vialta complemented the Expression. The Vialta's ability to retain highlight detail complements the Expression's favorable rendition of

shadow detail.

Foreman had a specific reason for testing the Expression. "I had an exterior daytime location for *Code 1114* that had a lot of inherent contrast. It was a wide street that consisted of shaded areas, with dark buildings against bright backgrounds and white picket fences in the full sun, so I thought that might be a good time to take advantage of the Expression."

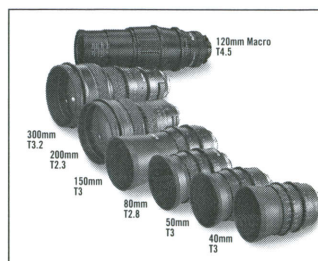
To complicate matters, these scenes were shot using an Arriflex BL-3 mounted on a constantly roving Steadicam, which meant that the camera saw in all directions. Foreman employed a shooting aperture of f16, recalling that in the sun he was reading f45, while in the shade the aperture went as low as f5.6. When shooting the actors in the shade, Foreman brought in some edge and side lights, typically 1,200-watt and 2.5K Pars, to help lift the image. To cope with Steadicam shots that moved from shade into full sun, Foreman employed aperture pulls to help ease the transition. For close-ups in the sun, Foreman bounced sunlight off of foamcore board for fill if the actors were backlit, or as an edgelight when they were moving around a lot. Having established the generous latitude of the Expression in tests, Foreman was confident that he was achieving the desired images despite the extremely contrasty conditions.

Foreman concludes by stating that the Expression is useful "if you want to work with stronger lighting and not worry so much about fill, which is how I tend to work. The Expression has a gentle quality about it. If I were shooting a project with a film finish, such as a feature, I'd seriously consider using it, because in projection the softer and gentler tones are more appreciable than, say, on a TV screen. A gentler tone can be a lot more appealing on film and gives a more tactile feel."

Spirits in South America

Chilefilms Group has installed one Philips Spirit DataCine at Chilefilms, its laboratory and postproduction facility located in Santiago, Chile, and a second DataCine at its laboratory and postpro-

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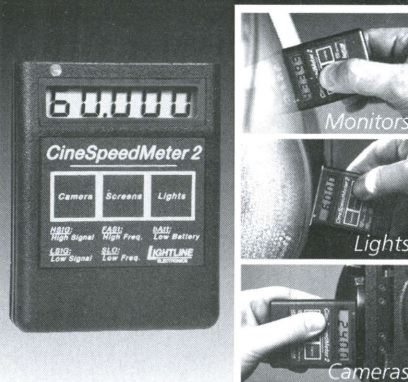
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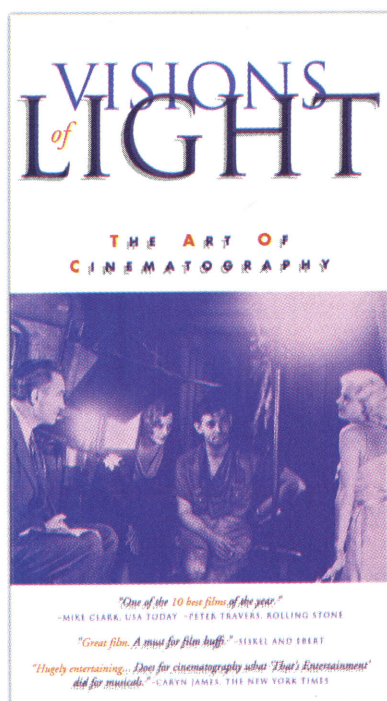
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Chilefilms in Santiago, Chile, is located at Av. Manquehue 1165, Las Condes, +56 (2) 220-3086, fax +56 (2) 212-9053, Web site: www.chilefilms.cl.

Videocolor in Buenos Aires, Argentina, is located at Humboldt 1967, 3rd Floor, Palermo, Capital Federal, +54 (11) 4777-1560/5, fax +54 (11) 4777-1566.

Moviola Adds Camera-Rental Service

Moviola has added a new camera-rental department to serve the burgeoning digital-filmmaking field. Bill Weisman, manager of the new department, notes, "This is the only company on the West Coast that can literally sell or rent anything to you for production, editing and post. Nowhere else can you take video- and audio-editing classes, become an Avid Certified Technician, or purchase equipment from tape stock to cameras to editing equipment to storage. You can buy, rent and learn from us."

While championing the careers of budding independent digital filmmakers, Moviola's camera-rental department also caters to established industry heavyweights such as Merv Griffin Productions, Jerry Bruckheimer, Dick Wolf, MTV, VH1, BET and NASH.

Weisman and his customer-service personnel prevent filmmakers from making mistakes and incurring extra costs. Moviola is the only facility that

allows clients to rent and purchase equipment, and the rental cost is often applied to the purchase price. Students with ID cards get 20-percent discounts.

Moviola also provides an experienced stable of directors of photography, camera operators and ground operators.

Moviola, 1135 N. Mansfield Ave., Los Angeles, California, 90038, (323) 467-3107, Web site: www.moviola.com.

Cinesite DVD

Cinesite Hollywood has formed a DVD division to provide compression, authoring, quality control and menu graphics services. It will be housed in a 1,500-square-foot facility at Cinesite's Pro-Tek Media Preservation Services Center in Burbank, California.

Stephen Gustafson and Stephen Alvanos will head the new division. The two previously worked together on DVD projects at Complete Post, Inc. "The new DVD division is a perfect fit for the range of digital-imaging and asset-management services we provide," says Cinesite president Ruth Scovill. "We have the technology and staff needed to provide high-quality DVD services in a convenient, streamlined process."

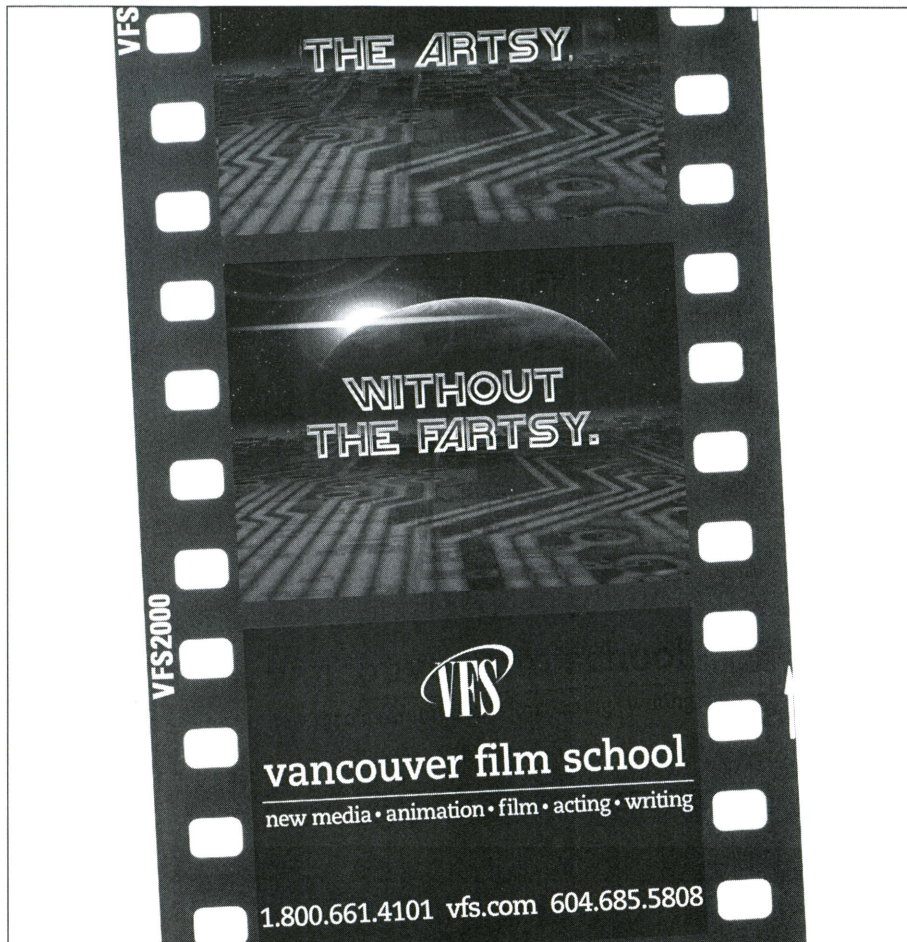
For more information, contact Cinesite Hollywood at (323) 468-4400 or visit their Web site at www.cinesite.com.

Mallorca Production

The Spanish island of Mallorca is home to Palma Pictures, the Mediterranean Production Center. With Spain's largest fully equipped soundproof studio, Palma Pictures also has casting studios, Avid and Steenbeck editing suites, Arri 435 and 535 cameras, production and location offices, paint and carpentry shops, wardrobe and makeup, restaurant and gym.

The island scenery can effectively double for locales such as Tuscany, Paris, Barcelona, Morocco, the French Riviera and Scandinavia. Structures such as Roman bridges, medieval castles and estates can be found on the island, which is rich in architecture and art.

Palma Pictures maintains a crew of 25 full-time employees in the production



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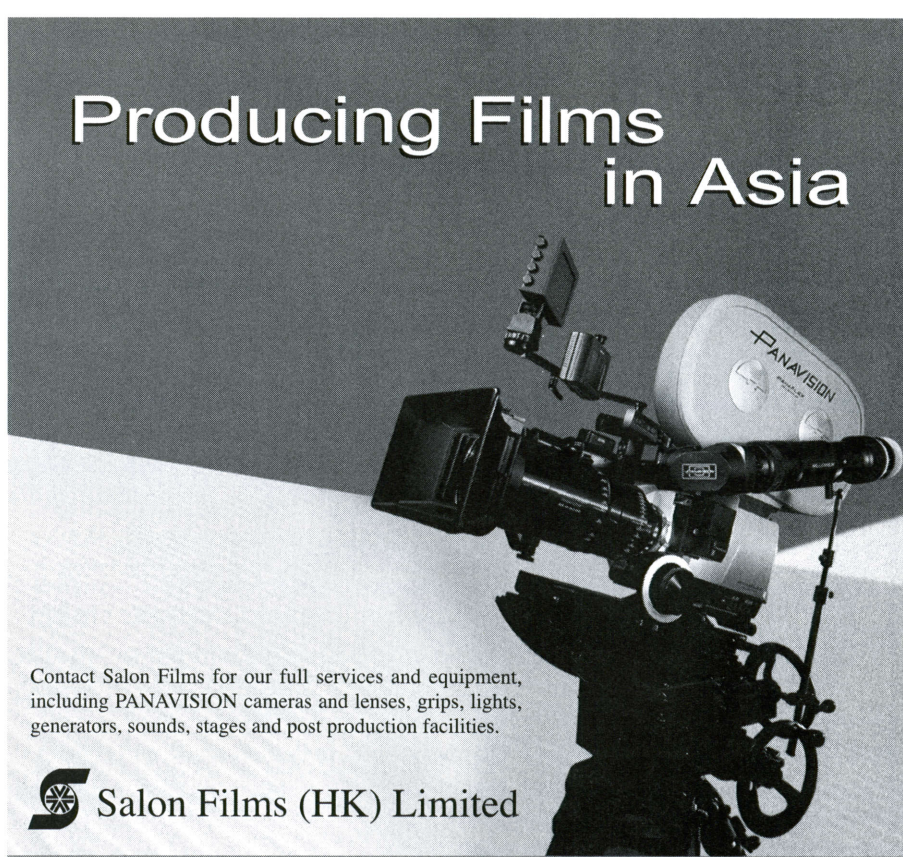
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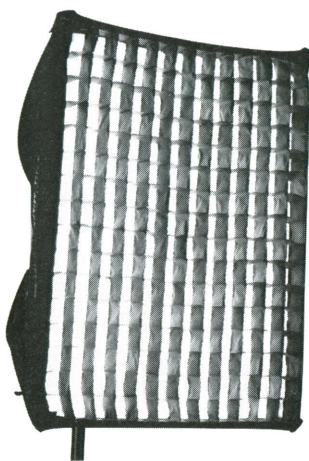
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Gridwork

Photoflex has introduced a new line of 40-degree Softbox Grids to provide cinematographers and videographers precise, cost-effective control of light spread in the studio and on location. The grids retain their shape indefinitely because every point of nylon-webbed fabric is hand-sewn.

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Softbox Grids are available in three sizes: 16"x22", 24"x32", and 36"x48". Velcro sides permit easy attachment of the grids to the inside mouths of softboxes made by Photoflex and other manufacturers. Each grid includes a carry bag with handle.

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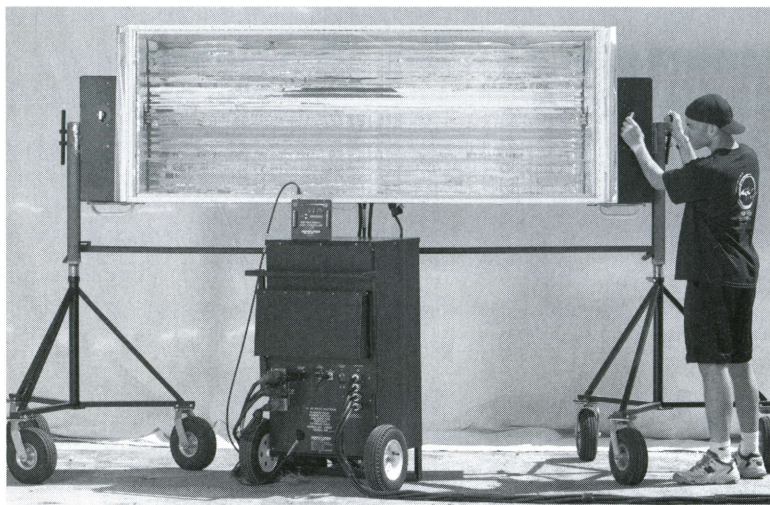
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Kelvin), even during dimming. The new 100K ESL lamp can be dimmed from 100 percent to one percent output with less than 100° Kelvin color-temperature change throughout the range.

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Shorts Venue

The Los Angeles Film School has opened its 338-seat, state-of-the-art, THX-certified theater to aspiring filmmakers who might need a venue for their short films — without a rental cost.

In a program dubbed Friday Night Shorts, the school is helping emerging filmmakers showcase their work in an effort to create a "buzz" around Hollywood's newest talent. A panel of qualified judges will select up to 10 short films to be screened every other Friday night. Films that are not selected initially will be kept on hand for consideration for the next round of screenings.

Anyone can attend on a first-come, first-served basis. Admission is \$2. Local film students will be admitted free.

Those interested can complete a submission form (available at www.lafilm.com/newsletter/shorts.html) and send it along with a \$10 non-refundable processing fee and a VHS copy of the film (no more than 25 minutes in length) to Los Angeles Film School — Friday Night Shorts Event, 6363 Sunset Blvd., Suite 400, Los Angeles, California, 90028.

For more information, contact Alison Boston at (323) 769-2490. ■

Points East

Aquatic Artistry

by Eric Rudolph

Shooting motion-picture film underwater requires more than superb cinematography skills and a sense of comfort in the deep. Because few filmmakers grasp the true complexity of filming beneath the waves, many additional skills — such as those of a meteorologist, casting director, wardrobe master and location scout — also fall to the underwater expert, according to Pete Zuccarini, a South Florida-based underwater cinematographer.

Zuccarini is the director of photography of the water-related sports sequences of the upcoming Imax feature *X-Games*. He has also shot and directed *Disney's New True Life Adventure*, as well as the water sequences of the HBO film *Getting Off*. He says that a range of variables, "from the effects of a new moon on the tides to unexpected currents from storms 2,000 miles away," must be considered when filming in and on the water. Finding clear water that will stay that way is a constant challenge.

"Water that appears crystal clear is always a suspension of all kinds of particles," Zuccarini notes. When currents, waves or wind stir things up, the cloudier water further cuts the contrast, color and saturation that are scant underwater to begin with. (The warmer colors are always affected first.) The result is that additional days must be added to a shoot, or locations and scenes must be quickly shuffled around. "You really need to have spent your formative years in the water," Zuccarini remarks. "If you've grown up sailing or surfing, you're likely to be in tune with the effects that such [factors] as far-off storms will have on your location."

Fighting the loss of warm colors



underwater is a key challenge in all such work. Zuccarini's main weapon is to use the sun by cheating deep-water shots into the first eight feet of water below the surface. "You can't compete with the sun for producing a warm look underwater," he says. When that isn't possible, he uses custom-made, 42" silver and gold parabolic underwater reflectors to focus the sun and reflect it onto his subjects, as well as warmly-gelled Xenon lamps aimed down from the surface.

Zuccarini adds that the use of daylight-balanced stock underwater can also help the warmer colors register more effectively on film. "You get too much blue with tungsten stock," he points out. "Using daylight film with tungsten light underwater produces sort of the same warming effect as using an underwater correction filter, which is a magenta-orange color." His favored daylight stocks for underwater work

include Kodak Vision 250D 5246 and EXR 50D 5245.

Zuccarini was filming a European Nestlé commercial on location in Australia when *AC* reached him. He said the producers wanted the underwater actors to look not just warm, but "hot," so he set up 4K Xenon lights gelled with magenta and flame gels above the water's surface. Even these strong lights "fell off from hot red where the light hit the surface to delicate orange 10 feet down," he notes.

Another major underwater issue in which Zuccarini sometimes has a hand is casting. Although producers are finally responsible for all casting, the cameraman maintains "a huge network of underwater talent" from all over the world. "A résumé that says 'swimmer' or 'scuba-certified' doesn't even come close [to the skill level required for complex underwater scenes]," Zuccarini

Underwater cameraman Pete Zuccarini captures an image for an upcoming commercial.

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observes. It isn't unusual for talent to develop major problems when faced with the difficulties of underwater work. Even seemingly simple commands, like holding their breath for 60 seconds while smiling with their eyes open, can send seasoned thespians running for the showers.

Zuccarini and the producers of the Nestlé spot saw 450 people in Los Angeles, Florida and Australia to cast the five leads and 20 backgrounders for the commercial. A suitably racy European commercial, the Nestlé spot called for men and women possessing drop-dead beauty to swim to a submerged shipwreck, where they would begin to disrobe and party. Several championship swimmers and professional swimsuit models were ultimately cast as the leads.

Because of the major elemental challenges found in open water, much underwater work is actually shot in pools. Gary Shlifer is a South Florida underwater cinematographer who specializes in shooting in pools and tanks. He converts pools to a studio setting by blacking out the floor and walls, and lighting from a grid made of two to six lengths of rock 'n' roll lighting truss arranged over the surface of the water. Speedrail fills in to hold lights that need to be hung between the trusses. This approach keeps light stands off the pool bottom and makes the instruments more accessible to the crew at poolside, so they can "easily drop a light where needed," Shlifer says. The lights, everything from 4K HMIs to Kino Flos and 650-watt tungsten units, are fitted into HydroFlex housings, and double-ground-fault interrupted.

Shlifer likes to mix all of the lighting types mentioned above. He also favors soft light for close-ups. "People are used to harder light underwater, but I like to use soft light." When he isn't using Kino Flos placed close to the talent, he double-diffuses harder instruments with silks and muslin. He also employs a lot of teasers and cutters for light control, because water "is similar to smoke in the way that it carries the light and diffuses it."

Working in the controlled environment of a pool makes more complex, dry-land-style lighting setups more manageable, leading to "more dramatic and stylized looks." Like Zuccarini, Shlifer uses hard reflecting surfaces, in his case 4'x8' acrylic mirrors, to bounce sunlight onto his talent when working outdoors during the day.

Shlifer's camera is normally an Arriflex BL-3 in a HydroFlex housing. "HydroFlex also has a housing for the Arri 435, which I use occasionally to do ramping and stop pulls," Schlifer notes. His lenses of choice are Zeiss Superspeed primes, which balance well in the camera housings.

Shlifer finds that a frame rate of 40 fps reads normally onscreen, primarily because it reduces the "liquid" rippling look that skin, muscle and body fat take on underwater. He also uses a greatly reduced shutter angle, often only 15 degrees. "The faster shutter speed adds drama, especially to movement, splashes and bubbles," he explains. He recently shot some anamorphic work using the Hawk 32-75mm zoom; he says that the scenes he shot of swimmers with the 15-degree shutter at 40 fps had a fluid beauty that took his breath away.

The natural buoyancy and density of the underwater world, while conducive to smooth, gliding camera movement, often needs to be tackled with unusual hardware to create swiftly moving, dramatic scenes. For the recent feature *Swimfan 85*, which Shlifer shot in an indoor pool in New York City's Harlem, dolly track was laid on the pool floor, and a 100' bungee cord was attached to the skate-wheeled dolly and then stretched to its limit. When assistants pulled the cord's release line, Shlifer was able to smoothly follow a fast swimmer with the camera. "It was like [being shot from] a slingshot," Shlifer says with a laugh.

Eric Rudolph can be contacted via e-mail at erudolph2@nyc.rr.com. ■

Books in Review

by Ray Zone

Shooting Digital Video, DVCAM, Mini DV and DVCPRO

by Jon Fauer, ASC
Focal Press, 284 pp., \$34.95
ISBN 0-240-80464-3

ASC member Jon Fauer, the author of six previous books on filming with both 16mm and 35mm Arri cameras, says he begins each book "as a self-help series of notes on how to use equipment." As a practicing cinematographer, Fauer has often found the instruction manuals that accompany cameras to be "baffling."

Fauer concedes that his new book on shooting digital video (DV) is "something of a chronicle of my own indoctrination into the exciting, new format of DV." Of all the new books on the subject, Fauer's is one of the most accessible. It was written for beginners as well as "die-hard film fanatics," and is an attempt to reach "a more diverse audience than just the ranks of professional cinematographers" — anybody, in fact, from amateurs to students "making the first wobbly steps into terra incognita."

The book opens with a fundamental question: "What is DV?" Fauer answers the question, but also states emphatically that "DV is not the end of film." DV is, he writes, "small, light, fast, portable, cheap, great for film schools, perfect for home movies, digital, component, 5:1 compressed video format." DV is not "future-proof, a universal standard, archival."

Fauer then plunges into his subject and provides a clear overview of DV theory, a DV tape catalogue and information on how DV camcorders work, while outlining the differences among DV, DVC, DVcam and DVCPRO. Practical steps for using a DV camcorder are set

forth in a separate section, using the Sony DSR-PD100A camera as a tool for the tutorial. Photos clearly illustrate the operation of the camera, with LCD menus also shown.

The section "Editing and Post" covers software options for both Macintosh and PC computers, with individual reviews and screen shots pointing out strengths and limitations of various software combinations. Audio editing is also covered.

Accessories and techniques are covered separately in a section that includes considerations of lenses, lighting and filters, tripods and heads, monitors and decks. A well-illustrated section on choosing a DV camcorder includes photos and specifications for currently available models, from the Canon XL1 to the Panasonic DVCPRO.

Fauer makes a few predictions: "We'll see 1-inch, high-resolution single chips in cameras within a year ... in two years, the resolution of camera imaging chips should be up to 2,040 horizontal lines. In four years, resolution should be doubled to 4,000 lines, the holy grail known as '4K' that approaches current film resolution."

In a small chapter called "Why Don't They?", Fauer, with input from his daughter, writes a "list of suggestions to the nice folks designing the next generation of DV cameras." These include interchangeable lenses, simpler electronic menus, and handgrips connected to camera bodies and not zoom lenses. He also suggests that professional and HD cameras should use 1-inch CCD chips. "That way," writes Fauer, "they could use all the 35mm motion-picture camera lenses in the world without modification."

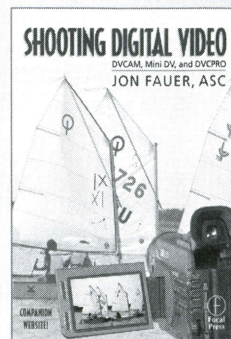
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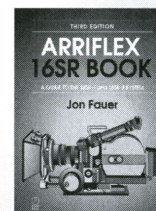
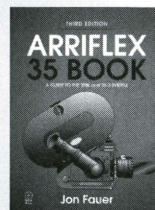
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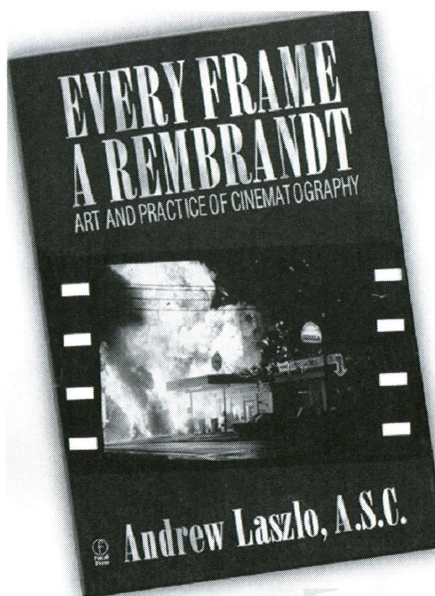


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***The Health & Safety Guide
for Film, TV & Theater***

by Monona Rossol

Allworth Press, 233 pp., \$19.95

ISBN 1-58115-071-7

Allworth Press publishes a number of exceedingly practical books for actors, directors, producers and screenwriters, and here is a breakthrough handbook and guide for anyone working in entertainment. This book addresses some of the unique health and safety hazards that present themselves in various entertainment fields, including film, TV, theater, theme parks and parades.

Monona Rossol is a chemist, artist and industrial hygienist who has investigated visual- and performing-arts hazards for more than 20 years. She is the founder and president of a non-profit corporation called Arts, Crafts and Theater Safety (ACTS), which provides health and safety services to the arts. In this book, she outlines precautions to take when dealing with hazardous materials and sets forth steps to comply with existing health and safety laws; she also recommends proper protective equipment and agencies and organizations to contact for help.

Rossol lays out highly technical information very clearly. Material Safety Data Sheets (MSDS), required by the U.S. Department of Labor, are "forms that provide information on a product's hazards and the precautions required for its safe use in the working environment." Rossol explains how to obtain an MSDS and how to read it. A completed MSDS will clarify important aspects of different materials, including carcinogenicity, signs and symptoms of exposure, and emergency and first-aid procedures.

An American National Standards Institute chart for eye protection illustrates basic protective gear. Three separate chapters on the air we breathe, respirators and ventilation thoroughly cover this vital subject. A chapter titled "From Start to Strike" discusses the

components of set construction, installation of scenery, rigging, setting lights and striking. Traditional ways in which people have done this work are now changing because the Occupational Safety and Health Act has changed regulations that apply to this work.

Location hazards are discussed in another chapter. "The worst conditions I have seen," writes Rossol, "are on locations that are chosen to represent a city's underbelly, such as abandoned buildings, shooting galleries and closed factories." City officials are often eager to bring film production to their area and, as a result, do not discuss potential hazards with location scouts.

"It has also been my experience that most location scouts and managers are not trained to recognize the difference between sites that look dangerous and those that are dangerous," Rossol writes. Such professionals need to know how to obtain and read an EPA environmental audit "to check certificates of occupancy, to know when structural engineers should be called in, and [to know] when that flaking paint or falling insulation should be tested."

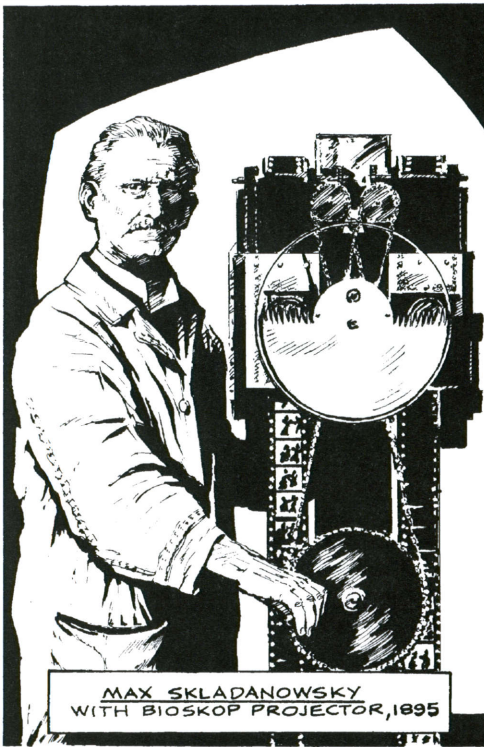
A chapter on asbestos illustrates the relevance and importance of this handbook. Rossol points out that actor Steve McQueen died from a form of cancer called mesothelioma, which is invariably caused by inhalation of asbestos fibers. The actor wore asbestos clothing and padding for fire protection when he was a race-car driver, but he also acted in the theater at a time when "scenic artists were still buying bags of asbestos fiber and throwing them in scene paint to provide texture." Special-effects artists of the time also used asbestos to simulate falling snow. And until the 1980s, instant papier-mâché powders that were usually labeled nontoxic contained as much as 80 percent asbestos.

Closing chapters of the book discuss fog, pyrotechnics and makeup. A list of resources and a detailed bibliography round out this book, which is essential reading for producers, production managers, location scouts and cinematographers. ■

MAX SKLADANOWSKY

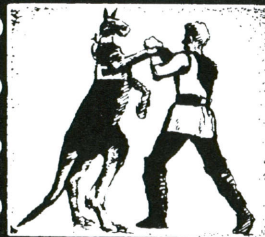
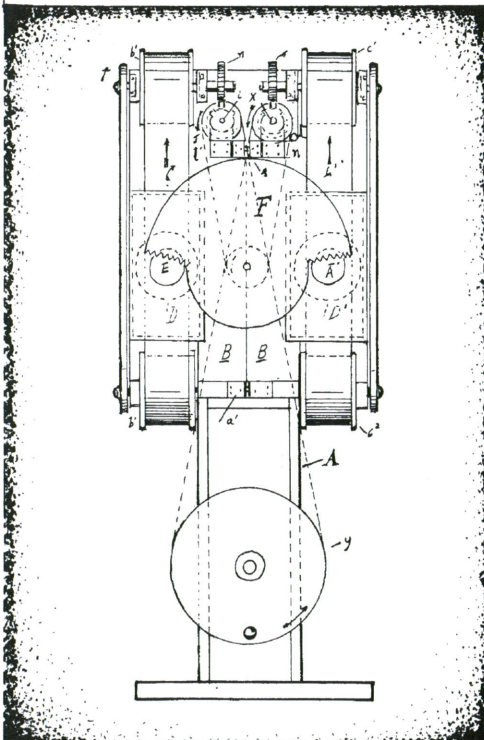
by Ray Zone & Chuck Roblin

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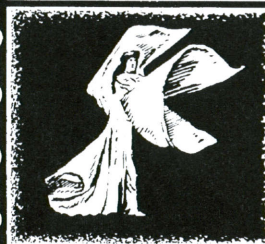


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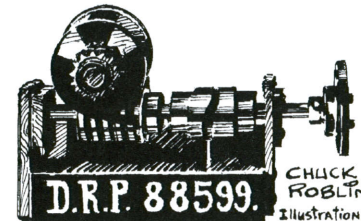
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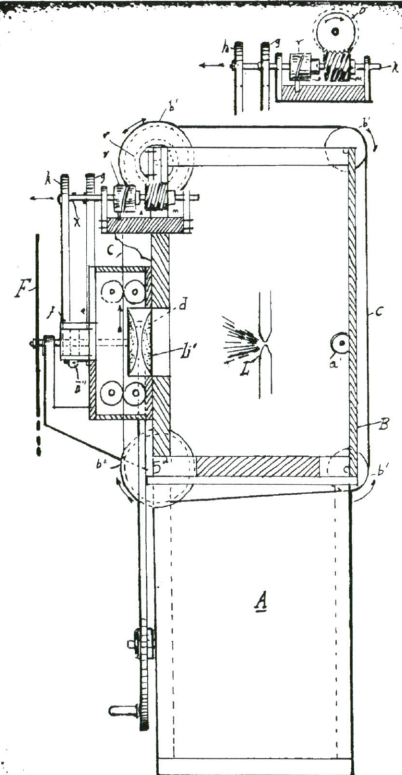
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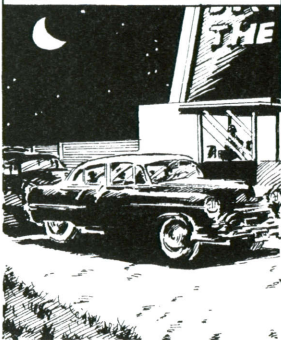
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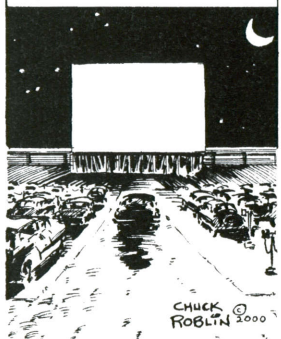
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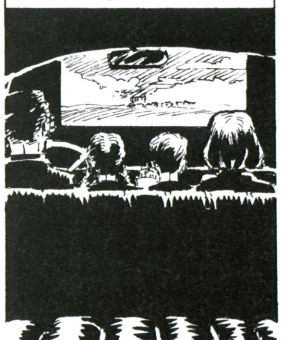
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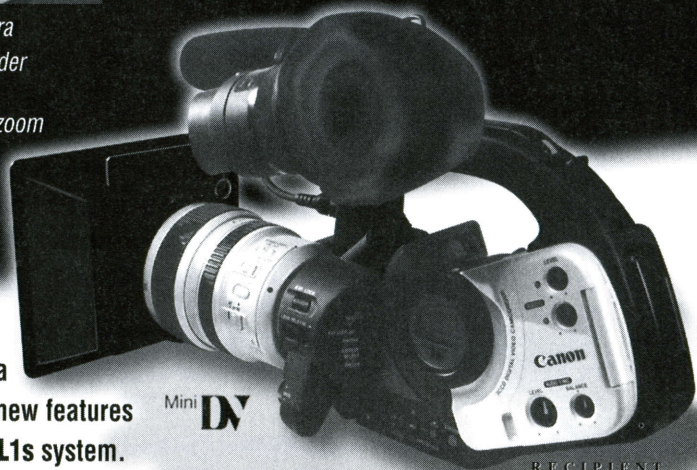
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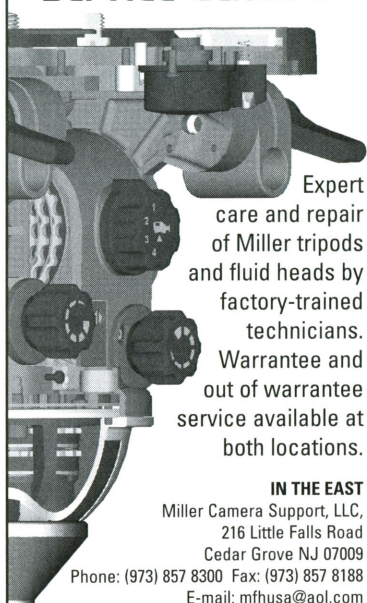
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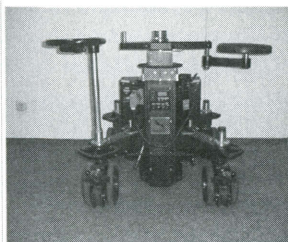
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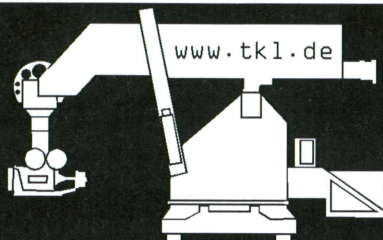
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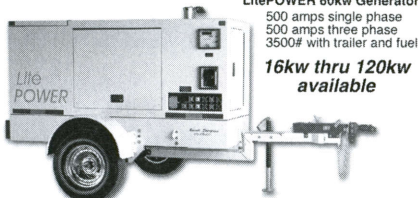
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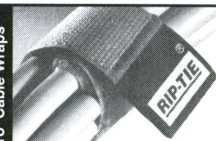
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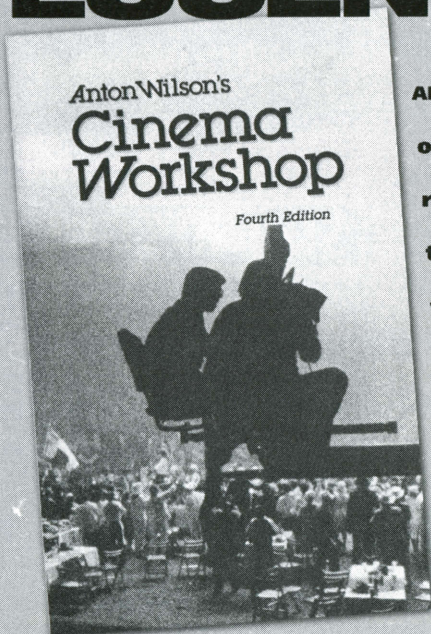
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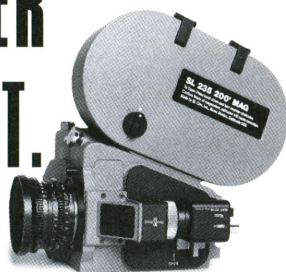
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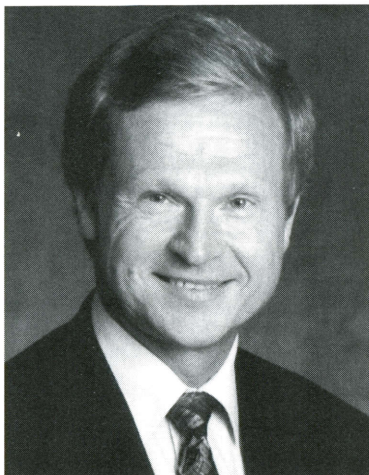
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From the Clubhouse



Joerg D. Agin (near right), Kodak senior vice president and president of the Entertainment Imaging Division, has retired. Eric Rodli (far right) succeeds Agin as president of the Imaging Division. Below: At the ASC Golf Classic (from l to r), ASC members Ken Peach, Jr., Chuck Rosher and Bobby Byrne take a break. (Bottom, from l to r) Mark Murphy, Richard Crudo, ASC, Ken Schaffer and Dennis Smith, ASC.



Changing of the Guard at Kodak

ASC Associate Member Joerg D. Agin has retired as senior vice president of Kodak and president of the company's Entertainment Imaging Division, effective the first of this month. Eric G. Rodli replaces Agin as president of Entertainment Imaging, stepping up from his current role as chief operating officer and vice president of the division.

"Joerg Agin was among the first to recognize the need for a convergence of film, digital and hybrid motion-imaging technologies in the entertainment industries, and he provided the leadership needed to turn that vision into reality," says Marty Coyne, president of Kodak Commercial Group. "His legacy will be reinforced and taken to the next level by the talented and dedicated team he assembled, now led by Eric Rodli."

Agin joined the Kodak division serving the motion-picture industry after graduating from the University of Delaware in 1967. He was appointed general manager of the Kodak motion-picture division in 1988. In 1992, he joined MCA/Universal Studios as senior vice president of new technology and business development, but returned to Kodak in 1995 as president of the new Entertainment Imaging Division and as a senior corporate officer.

"I've been blessed to work for the



world's leading imaging-technology company in this great industry, where so many of our customers are talented filmmakers whom I respect and admire," Agin says. "I have tremendous confidence in Eric Rodli. He is a visionary and experienced leader with a plan for the future and the ability to make it happen." Rodli joined Kodak in January 2000. He was previously president of Bexel, the largest broadcast video and audio equipment rental company in the United States. He is a graduate of the University of California, San Diego, and earned a master's degree from the University of Chicago.

"Joerg inspired and enabled the collaborative spirit needed to drive our industry into the future," notes Rodli. "We will build on that foundation by continuing to develop the film, digital and hybrid imaging technologies, products and services needed to provide creative flexibility, enhanced image quality and financial advantages for our customers in all sectors of the industry."

Fore!

ASC members, associate members and guests laced up their spikes on June 4 to leave their marks (some more permanent than others) at the Brookside Golf Course for the 18th Annual ASC Golf Classic. Blessed with excellent weather throughout the day, the Classic once

again did not release its firm grip on the \$10,000 hole-in-one prize. In the members category, ace sharpshooter Owen Roizman, ASC was victorious with a low net score of 71. Aaron Schneider, ASC and Frank Johnson, ASC placed second and third respectively for low net. Bill Roe, ASC was the low gross winner, shooting a 73.

Of the associate members, Brian Spruill claimed first place low net, followed by Mark Murphy and John Bickford. Steve Manios shot a low gross of 79. The women's division saw Susie Daugherty take low net, followed by Christine Willis and Joanne Reeves. Gloria Palazo was the low gross winner. Of the guests, Bill Baker the low net winner, followed by Ralph Sasaki and Stu Martin. Bruce Doering took low gross.

At the ASC Golf Classic Dinner held at the ASC Clubhouse on June 18, the victors collected their golf tourney spoils and regaled each other with fish stories of the hole-in-one that almost was.





Panavision's Langan Dies

ASC associate member Tracy Langan, director of sales for Panavision and longtime friend and supporter of cinematographers and camera assistants

alike, died on July 4 at the age of 48.

Born September 11, 1952, to Glenn Langan and Adele Jergens-Langan, who had prolific acting careers during the 1940s and '50s, Tracy grew up in the Los Angeles suburb of Encino. After graduating from high school in 1970, he joined the Los Angeles Police Department. In 1971, he changed career paths and was hired by Panavision as a carpenter's helper. He was a fixture at Panavision, working his way through the ranks to eventually become director of sales, where his motto was helping everybody and anybody at all times.

Panavision vice president of marketing and operations Larry Hezzelwood, a close friend of the energetic

Langan since the ninth grade, remarks, "Watching Tracy's enthusiasm in dealing with our customers, be they established and famous or an up-and-coming filmmaker ... [it was obvious that] he loved taking care of them. It came from his heart."

Langan was buried on July 9 in a private ceremony Oakwood Memorial Cemetery. A public memorial service followed at Canoga Park Lutheran Church; it was attended by more than 700 friends and industry associates.

Langan is survived by his wife, Cynthia, and his mother. Donations may be sent to the Canoga Park Lutheran Development Fund, 7357 Jordan Avenue, Canoga Park, CA, 91303. ■

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WRAP SHOT

The General (Charles Boyer) and Madame De (Danielle Darrieux) find their fates inexorably linked to a pair of earrings.



The 1953 film *The Earrings of Madame De...*, written and directed by Max Ophuls, is one of the baroque masterworks of cinema. A complex visual symphony, the film is set amid the aristocratic class of 19th-century Paris. To pay off a gambling debt, Madame De (Danielle Darrieux) sells a pair of earrings given to her by her husband, the General (Charles Boyer), thereby setting off an inexorable chain of events.

"Fate is working for us," says the Baron Donati (Vittorio De Sica), the suitor of Madame De. His statement proves truer than any of the characters in this tragic tale know, as the vanity and frivolity of their lives become apparent.

Ophuls was a peripatetic filmmaker who found a home in France. A native of Saarbrücken, a city alternately claimed by Germany and France, Ophuls landed in Paris in 1933 as a foreigner with a German-language background who had directed four films. From 1933 to 1940, Ophuls made 14 films and began to develop an elaborate visual style.

During this period, French filmmaking was very much under the influence of German Expressionist cinematographers such as Kurt Courant, Eugen Shuftan and Rudolph Maté. These masters of the craft taught the French school of cinematographers from 1933 to

1945. Among the school was Christian Matras, the director of photography on *The Earrings of Madame De...* Matras had filmed his first motion picture, *Maldone*, in 1928, and in 1937 he photographed *Grand Illusion* under the direction of Jean Renoir.

The first panchromatic film was introduced to France in 1927, and its highly inflected shades of gray began to push cinematographers to organize light in ways that would produce an impression of depth and perspective. The use of backlight enabled cinematographers to detach characters from the background and more clearly define visual space on the screen. The artistry required to achieve these effects was very rigorous, and up to 1950, when film stock and lighting made great progress, cinematographers like Matras had great authority on movie sets in France.

World War II brought Ophuls to America. From 1947 to 1950 he made four motion pictures for the studios, among them *Letter from an Unknown Woman* (1948), which thematically foreshadows the baroque visual greatness of his final works. When he returned to France in 1950, he made four films that are justly celebrated as masterworks of cinema. *La Ronde* (1950) is a visually dazzling roundelay of lovers linked by

fate. *Le Plaisir* (1952) is an anthology of interconnected lives at a bordello. In these films, as well as *The Earrings of Madame De...* and Ophuls' last film *Lola Montes* (1955), the camera moves with dazzling fluidity in tracking shots and panning shots that are among the most brilliant in all of cinema.

Ophuls used tracking shots to visually link his different characters in single takes that suggest their human "connectedness." Thematically, his final films incorporate the idea of circularity, fate made visible and a perpetual return to our own humanity. This circularity visually translates into actual 360-degree camera movement and subject matter that is continually whirling as the camera tracks.

A celebrated sequence in *The Earrings of Madame De...* is a series of elaborate tracking shots, linked by slow dissolves, of Madame De and the Baron whirling in a single waltz that takes place over a period of months. As the pair dances, the camera moves with them, tracking past other dancers, plants, servants and pillars in the foreground—which, by their motion past the camera, suggest the passage of time in a uniquely visual manner. A series of mirrors behind the dancers lends opulence and intricacy to the sequence.

Matras photographed all four of Ophuls' final films, and each contains virtuoso sequences of camera movement. The cinematographer was not just interested in camera motion for its own sake. In the December 15, 1973, issue of *Technicien du Film*, Matras wrote that camera images must be "constantly balanced, totally in harmony with the requirements of the scenario, but without those self-important effects that force your attention." Matras believed that cinematography and direction should always "serve the film," instead of serving its "own ends by introducing spectacular eccentricities."

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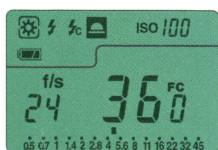
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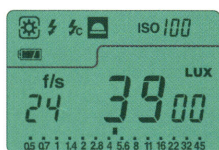
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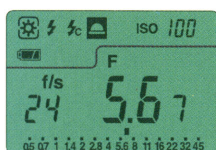
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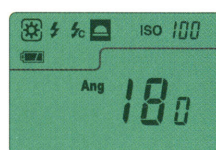
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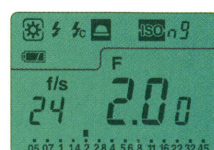
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